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EDITORIAL COMMENT

MagicClip clip art disks for use with your MagicDraw program will be available by the time you receive this issue. A complete catalog and price information will be sent directly to each registered owner of MagicDraw. This is quality clip art and we will print a few examples on page 22 of the program listing section. The clip art that we have gathered is of commercial quality, which is a great improvement over the standard block graphic or regular icon type of graphics that we have been used to in the past. The long process of collecting, and conversion to the MagicDraw format has been quite a project, but one that we felt was worth it. This is not to knock other programs that use the typical computer generated icons, but it is a step up in quality, and without question MagicDraw is superior to any other drawing program for the Model 4s. Superior graphic abilities, superior fonts, and now superior clip art. We have David Goben to thank for providing us with this unsurpassed program, fonts and clip art.

Some readers thought that they received their November issue of CN80 late. No, it was not mailed late. It was mailed right on schedule. But with all the Christmas catalogs that are also mailed at the bulk rate at this time of the year, our guess is that it took a few days longer to be delivered by the post office. If you refer to your January 1993 issue on page 25, you will find printed the Advertising and Mailing schedule for 1993. So far we have been lucky and not missed a mailing date for the past six years. But as the calendar progresses you will find that some mailing dates slip from the last week of the month to the first week of the month. This November we mailed an issue on Nov. 2nd, and this issue will be mailed on Nov. 30. But we are very gratified that out loyal readers are sitting at home anxiously waiting to receive their next issue. The schedule for 1994 is printed on page 22 of this issue.

May you all have a happy
and safe holiday season.

December
1993

LOVE AT FIRST SIGHT

Harold J. Hendriks

Do gray-haired, senior citizens fall in love? You bet they do! I know, because I am involved in an ongoing love affair with Trissa, a very smart, little blonde beauty. I'd like to tell you about her.

My dear wife of more than 53 years no longer knows me and doesn't answer to her name. She's another sad victim of Alzheimer's disease. She has been a patient in a nursing home for the past seven years and has been unable to walk, talk or feed herself for more than five years.

I was a Professor of Electrical and Electronic Engineering, a member of the faculty of a major State University, for more than thirty years. Fifteen years ago I took early retirement from the university so I could stay home to care for my dear wife. She was then in the early stages of Alzheimer's disease.

I first met Trissa in the spring of 1984. It was a classic case of love at first sight. I was instantly captivated by her beauty the moment I first saw her. She was so petite and charming, her gracious form so comely and attractive. I couldn't take my eyes off of her. I knew I had to have her as my own; I couldn't go home without her.

During the last five years that I cared for my dear wife at home, before I had to give up and put her in the nursing home, the villain of Alzheimer's disease slowly but inexorably robbed me of her companionship, love and affection. I have been a virtual widower ever since I put my wife in the nursing home.

With the loss of my dear wife's companionship, friendship, love and affection, I would be totally lost and very lonely without the support of Trissa's loyal and faithful companionship. She occupies my time and turns my thoughts away from my loss and troubles. Trissa inspires me and challenges my mind, and makes me forget that I am lonely. Her fascinating persona transforms the hours and hours I spend with Trissa into hours of sheer delight.

Trissa is my beautiful, little blonde, TRS-80 Model 4P Computer. She charms and fascinates me, and gives me much joy and pleasure. I spend many enjoyable hours "talking" to her with my finger tips on her shapely and responsive keys. Her lovely green screen glows and twinkles as she faithfully responds to my every query and command.

Since my retirement some fifteen years ago, I have owned and used five different computers, all Tandys: namely, a TRS-80 Model II business computer, my bonnie little TRS-80 Model 4P, a Model 102 laptop, a Model 1000-TL desktop and a Model 1100-FD laptop. The Models 1000-TL and 1100-FD are both MS-DOS computers.

Except for the Model II, which I sold early on in 1984 shortly after I purchased my new 4P, I still own and use the other four computers. Of all the computers I have owned and used, I love my beautiful little TRS-80 Model 4P the best.

I first saw the TRS-80 Model 4P in a Radio Shack Store in California in the early spring of 1984. As I said before, I was charmed and captivated by the petite and attractive packaging of the 4P. It was a case of true love at first sight. I knew that I couldn't go home without her. Although I thought that Tandy's price was a bit too steep, I quickly wrote out the check and took Trissa home with me.

The TRS-80 Model II was a very good, small-business computer for its day. However, compared to the petite and lovely little Model 4P, the Model II reminded me of the fat lady in the circus. The Model II was big and heavy, and boxy in appearance; it took up far too much space on my desk. The Model II was so heavy that every time I tried to move it to clean or to rearrange my setup, I either developed a hernia or put my back out of joint. Fortunately I was able to sell my four-year old Model II without delay.

The Model II employed eight-inch disk drives. Before I sold it I converted all of my many Scripsit 2.0 word processing files over to ASCII files. Using a null modem and a serial cable connection I transferred the ASCII text files from the Model II over to 5.25 inch diskettes on my new Model 4P. I used the same procedure to transfer the large number of basic programs I had written for use on the Model II. All of my Model II basic programs, with a few minor changes in several of them, ran without a hitch on my new 4P.

At the time I purchased my Model 4P I upgraded the memory to 128K. I use the extra 64K of memory as a MemDisk. The MemDisk adds considerable flexibility in copying files and expedites switching files in and out of my word processing program. Intelligent use of the MemDisk speeds up most operations many fold and dramatically reduces disk drive wear and tear.

When my Model 4P was two years old I replaced the original black and white monitor with an amber-screen monitor and replaced the single-sided disk drives with double-sided disk drives. The new double-sided drives increased the flexibility and ease of use of the 4P tremendously. My upgraded 4P with 128K of memory and double-sided disk drives is a "peach", far better than an "Apple". I love it.

The Model 4 line of computers is an excellent line of very good "work horse" computers with a sizable amount of good to excellent software available for them. They should get a lot more respect than they do from computer users and the computer press.

The glitzy computer magazines have sold their souls in their greedy chase for advertising revenues by promoting power and speed and upgrade upon upgrade upon upgrade ad nauseum. The seductive computer press has enticed many computer user into a crazy and senseless, never-ending chase for ever more power and speed.

I will probably get some arguments and static on my software preferences. However, here goes. My two favorite Model 4 software packages are Prosoft's Allwrite word processor and the Profile 4 Plus data base by the Small Computer Co., Inc.

I cut my word processing "eye-teeth" on my first computer, the TRS-80 Model II, using the Scripsit 2.0 Word Processor which was developed specifically for the Model II. Scripsit 2.0 for the Model II was an excellent word processor for its day. It is very user friendly and a very nearly WYSIWYG type of word processor. As most readers of "Computer News 80" probably know, WYSIWYG stands for "What You See Is What You Get", that is in terms of paragraph and page format and layout. I really liked Scripsit 2.0.

When I purchased my Model 4P I was disappointed that a version of Scripsit 2.0 was not available for the Model 4 computers. Radio Shack personnel assured me that SuperSCRIPSIT was equally as good. I was conned into believing that it must be so.

It seemed so obvious. If SuperSCRIPSIT was super, then it must be superior to any other form of Scripsit, even to Scripsit 2.0. Boy! Was I ever mistaken! A few days spent working with SuperSCRIPSIT convinced me that it was a bummer! After looking into several other word processors then available for the Model 4 computers in the summer of 1984, I decided to take a flyer on the newly released Allwrite.

Allwrite is a WYSINWYG word processor. "WYSINWYG" stands for "What You See Is Not What You Get", that is in terms of paragraph and page format and layout. After using the very user friendly and almost-WYSIWYG Scripsit 2.0 for close to four years, my first reactions to Allwrite's WYSINWYG modus operandi was confusion and frustration. I nearly junked Allwrite before I gave it a good try. It took quite some getting used to, but I'm glad I stuck with it!

What really sold me on the value of Allwrite for me was its perfect control of my TRS-80 Daisy Wheel II-B printer. Using Allwrite I could print perfectly justified, multi-column text using the Madeleine proportional-print daisy wheel. Allwrite has the ability to do inter-character micro-padding as well as inter-word padding so that all the padding needed to justify a line of text is not added only between words. Allwrite's method of printing multi-columns of text results in perfect registration of the lines of text in adjacent columns.

So far, I haven't found a single MS-DOS word processing program, even amongst those costing hundreds of dollars, that gives me the ease and flexibility of formatting that I can achieve with my ten-year old trusty Model 4P with Allwrite.

It is not the primary purpose of my love story to praise Allwrite, but to brag about my beloved little Tandy 4P Computer. You may not agree with my appraisal of Allwrite, but I am sure that most readers of "Computer News 80" will agree with me that Tandy's Model 4 line of computers are excellent computers.

Like all of us, my beloved little Trissa was growing old. I realized several months ago that the useful days remaining on her much-used monitor were numbered, that the disk drives were nearing the point of failure and that the keyboard was nearly worn out. I couldn't bear the thought of Trissa's near demise. What was I to do?

I turned to the Doctor of TRS-80 Model 4 technology, Mr. Stan Slater, the genial Publisher of "Computer News 80". After several long-distance telephone consultations with "the good doctor", I loaded my beloved little 4P into my car and drove 600 miles to beautiful Casper, Wyoming, home of "Computer News 80".

"Dr." Stan assisted by "Dr." Ron Gatlin performed some transplant surgery on Trissa. They replaced her old disk drives with brand-new, double-sided, double-density drives, replaced the old keyboard with a slightly used, but nearly new keyboard with clustered arrow keys and replaced the old monitor with a slightly used, but nearly new green-screen monitor. Everything else about Trissa checked out O.K. Thanks to Stan and Ron and *Computer News*

80, my beautiful little Trissa has a new lease on life. I am most grateful that she is once again nearly as good as new.

I do volunteer computer work for two non-profit organizations. Since both organizations use MS-DOS computers, I own and use two Tandy MS-DOS computers, a desktop and a laptop. Although my two MS-DOS computers have their good points, it is Trissa, my beautiful little Model 4P that I love the best.

If you are lucky enough to own a TRS-80 Model 4P Computer, give it tender, loving care. I am sure that you love your little beauty as much as I love mine. Stan and Ron and *Computer News 80* are there to help you keep it well and healthy.

Long live the Model 4 line of excellent Computers. Thank you Tandy for giving us the Model 4 and 4D, and especially the beautiful little 4P. And thank you Stan and Ron for supporting the Model 4s with *Computer News 80.* Long live Stan and Ron and *Computer News 80.*
-Harold J. Hendriks

-P.S. I would enjoy hearing from any *Computer News 80* reader who owns, uses and loves the TRS-80 Model 4P Computer. I am sure that I am not the only one who loves the beautiful and charming little 4P. Please write to me at 906 South Viola Street, Milbank, SD 57252 - Tel.: (605) 432-6548.

(Editor's Note) Since receiving this article Mr. Hendriks has purchased and started using Scripsit Pro. We also received a phone call from him telling us how much he liked Scripsit Pro and how simple it was to call his Allwrite text files into Scripsit Pro. We look forward to more articles from Mr. Hendriks and appreciate his plugs for CN80. -Ed.

ENVELOPE/BAS PROGRAM

A Basic program for addressing envelopes

by Ray Taylor

I have been a subscriber to CN80 all most from the beginning, and have enjoyed all the tips and programs. I saw a program in one of the issues that printed checks. Well I don't need to print checks, but I thought this could be changed to print the address on several size envelopes. As I'm still a amateur at programing, it took me a while to recode it. This may not be the most efficient way but it worked.

Along comes a program written by David Goben to print the Postal Bar Code at the bottom of the envelope. Well, because I have a Radio Shack DMP410, this program needed to be changed to support my printer. So I combined the two modified programs in to one that would print my Return and Mailing address and the Bar Code.

I also added Data lines with the City, State, and Zip Code for some of the places that I send letters to. Then using the <F1> key to run a subroutine that, compares the City and State fields that I have entered in the address to the City and State info in the data lines, to return the Correct Zip Code. This is a little slow because I have so many. I think that this could be done differently but I haven't figured it out yet.

In one of the more resent issues a reader from Houston described a way to display a help screen using the SYSTEM LIST command. So I've added this to my program and added the (ASCII8) so that ascii characters 128 thru 191 would display on the screen. I used them for a border around the INFO/SCR. The command would be SYSTEM"LIST INFO/SCR (ASCII8)". I created the INFO Screen using Allwrite, which allows the ascii characters to be entered and stores the file in ascii.

I have included the "ENVELOPE/BAS" , "INFO/SCR" , and this Letter which is written using Allwrite. You may edit and print this letter and program. Thanks again for all the good ideas and programs. The enclosed disk is SSDD 40 tracks formatted with LS-DOS 6.3.1
-Ray Taylor

(Editor's Note) Ray's program is eight pages long, a little to long to print in this issue, and we are sure that it is longer than what you would want to type-in from scratch. It will be available on our Disk Series Number 23 which covers all the programs mentioned or listed in the last three volumes of CN80.

From running this envelope addressing program it is one program worth having. -Ed.

USING THE MS-UTILITIES:

VC and Comma-Delimited

By David P. Miller

NOTE 1: This article comes from the author's "lost files" department. Some information may have been previously covered.

NOTE 2: As you get older, your memory is the second thing to go. I can't remember what the first is... The QBASIC listing for the WPFIX/BAS program promised last month will not be published. QBASIC can load this program with no problems; just save it in ASCII first.

AN EXPLANATION OF ASCII

Back in the days of 'dumb' communications equipment, when teletype machines were considered state of the art and home computers were only available in kit form, there were several methods of storing and transmitting information. Mainframe computers used codes such as EBCDIC for magnetic storage, and EBCDIC, Baudot, and nine level "bankers'" codes for transmission and offline storage. Now that I've mentioned these monsters, I'll quietly put them back in the closet; we need not know much about them in conjuction with personal computers. However, since the people responsible for creating the home computer industry were hobbyists, they used their experience in the process. The only well defined 'standard' of the time that was cost effective for the hobbyist was "ASCII"; an acronym for the American Standard Codes for Information Interchange.

This standard had been defined for use with teletype equipment, and defined the use of numeric representation of letters, numbers, and symbols within the equipment. Each letter, number, and symbol was assigned to one of the values in the range of 0-127. This range was necessitated by the limitations of the equipment in use at the time; a letter was composed of seven binary digits, and the resulting seven-bit word could only hold a value within that range.

The space character was defined as corresponding to a decimal value of 32, capitals A-Z as decimal 65 to 90, lower-case a-z as decimal 97 to 122, and the remaining unused values between 32 and 127 assigned to various symbols such as the pound, percent, slash and so on. The characters assigned to decimal 127 and values below 32 were "Control Characters"; decimal 127 was the Delete function, 10 was the Line Feed, 13 the Carriage Return, 12 the Form Feed and so on. ASCII was adopted by the home computer hobbyist as the standard because the home computer always used 8 bits for internal storage, which left the upper possible 128 values undefined, but allowed the hobbyist to share information with other hobbyists. With the introduction of IBM's Personal Computer, a further standard was defined: "ANSI", for the American National Standards Institute. ANSI adopts all of the defined symbols of ASCII and most of the Control Codes.

Since the structure of the code set is standardized among all major home computers regardless of brand, a 'de facto' standard came into use: the ASCII file. An ASCII file consists of the characters defined by the ASCII standard, and when the barrier presented by differing storage methods is overcome, a file can be transferred between any two computers with no loss of information. This allows a computer to use Word Processing, Spreadsheet, Data Base, and even some program files that may have been created on another brand of computer.

Although the meaning of each (or most) character was defined, the use of these characters sometimes became a grey area. On the TRS-80, the Line Feed was not used as part of the End-Of-Line sequence to save storage space. Instead, the Line Feed is inserted by software or hardware in TRS-80 applications when the information is printed or displayed. The End-Of-Line sequence on C/PM and its' derivative MS-DOS, as well as many other computers, conforms to that used by 'dumb' teletype equipment, which required two codes to begin a new line: the Carriage Return to move the carriage (or cursor) to the left end of the line, and the Line Feed to advance the paper (or cursor) to then next blank space down. Also, the End-Of-File character is used by many programs to denote the end of the meaningful information. This was necessitated by C/PM's initial lack of file size information, and enabled a program to stop reading data before invalid information was encountered in an 'unused' portion of the last physical record.

Because of the above, the End-Of-Line and End-Of-File sequences are the most common point of incompatibility between a TRS-80 and other computers. When transferring a file from a TRS-80 to an MS-DOS computer, the 'missing' Line Feeds must be inserted so that the receiving machine will recognize the end of each line. When transferring in the other direction, the 'extra' Line Feeds must be removed to avoid double spacing of each line. LFEOF/CMD is provided with the MS-Utilities to accomplish this operation quickly and easily; see the documentation provided and examples shown in this series of articles for details on using LFEOF.

VISICALC

VisiCalc (VC) Spreadsheet files are stored in a format, one line per cell or item of information, that contains ASCII characters. Therefore, it can be a simple matter to transfer such files to an MS-DOS spreadsheet program if the receiving program is capable of reading VisiCalc files. (David Goben's Busy-Calc {BC} and BCX spreadsheet programs are VisiCalc-compatible and thus should use the same formats.) Many MS-DOS spreadsheets provide this import function; I will cover transferring files to Lotus. See your specific spreadsheet software's instruction manual for details.

Let us assume that a VisiCalc spreadsheet called "INCOME/VC" has been created on your TRS-80, and that you want to read it into Lotus on your MS-DOS machine. Let us further assume that a system diskette is in drive :0 which contains the MS-Utility programs, the VisiCalc file, and enough space for the converted output file. You must first convert the EOL sequence with the command:

```
LFEOF  INCOME/VC:0  :0  (LF,EOF)
```

This command will read the spreadsheet file, insert a Line Feed after each Carriage Return, and add an End Of File (EOF) character. The EOF may not be needed, but will almost never cause a problem. An output file will be created on drive :1 called "INCOME/FLF". Now use the command:

```
MSCOPY INCOME/FLF:0 A:
```

and when the prompt to insert the MS-DOS diskette in drive A: appears, insert your MS-DOS diskette into drive A: (TRS-80 Drive :1) and press the [ENTER] key. MSCOPY will copy the file to the MS-DOS diskette, creating the file "INCOME.FLF". Now insert the MS-DOS diskette into your MS-DOS computer and rename the file for Lotus use with the command:

```
RENAME  sd:INCOME.FLF  *.VC
```

replacing "sd:" with the drive letter corresponding to your floppy drive. Finally, enter the Lotus Access System. One of the options on the menu is "Translate". Selecting this option, you will find "Visicalc to Lotus" available. Proceed as directed by the Translate utility, and you will soon have a Lotus worksheet file identical to the original TRS-80 VisiCalc file. Minor modifications may be required for the worksheet to operate correctly; for example, VisiCalc requires that you continue typing text in succeeding cells, as text extending beyond the width of the cell is not displayed or printed. After import to Lotus, you may wish to adjust the width of a particular column of cells, which will split the text or cause the omission of some part of the text from the display or printout. In this case, you must retype the text into a single cell for proper display or printing.

COMMA-DELIMITED ASCII

Another 'standard' to be considered is "Comma Delimited ASCII". This format, while not officially defined by any organization, is in common use and is quite helpful when transferring data files. Many data base and BASIC programs use "Comma Delimited" files. This standard requires that each element of data (field) be separated by a comma, and each set of related data (record) be terminated with an EOL sequence. Further, the limitations of data handling under BASIC require that quotes be used to surround fields containing spaces and/or numbers in combination with (or numbers to be taken as) text. Thus, an entry in a name and phone number data base file in this format might look like:

```
"CN-80 Magazine","(307) 265-6483" [EOL]
"Joe Cool","(918) 123-4567" [EOL]
"John Doe","(617) 987-6543" [EOL]
```

LFEOF/CMD can be used to convert the EOL sequences in the above file so that a data base or BASIC program capable of reading delimited files could properly process this information, allowing transfer between different data base programs. Finally, by examining the contents of records stored in 'fixed-length' format (with prior knowledge of the contents of the first few records), you can write a simple BASIC program to read an existing data base file and write a comma-delimited file for export. This process would be necessary if your data base program cannot write a comma-delimited file (a rare situation indeed), or if your data file was created by a BASIC program.

NEVER A DULL MOMENT...

Conversion of files between different types of computers is an art requiring imagination and skill. The ASCII and Comma Delimited standards provide a point of reference that the dedicated individual can use to 'get there from here'. The MS-Utilities provide the means to move information from one computer to another, but this information frequently needs to be 'massaged' before it can be used on the receiving computer system. It is my hope that the discussions presented above will help you to do the job with a minimum of difficulty.

-David P. Miller

A VISIT WITH DAVID GOBEN

by David Goben

FONT NAMES IN SS/PRO

LaserJet and DeskJet printer users of my Soft Font packages for SuperSCRIPSIT and SCRIPSIT Pro may be wondering how to access soft fonts with names over "9". I will explain that and a whole lot more, here. In the manual that accompanies the soft font package, it explains under the "USING USER DEFINED PRINT CODES" that you must specify the font using a set code sequence. This sequence is only necessary if you wish to access fonts other than the fonts supported by the font driver. Such an example might be a special "headline" font to use as headings of sections, much as CN-80 does with this magazine. The soft font downloader used with these packages (and the much faster FAST SOFT FONT DOWNLOADER from CN-80, $10 US) is set up to begin naming the fonts starting with 1, and incrementing the name with each consecutive font.

For example, in the TIMES ROMAN 10 POINT package, the disk contain 3 fonts; ROMN10PN/SFP, ROMN10PB/SFP, and ROMN10PI/SFP, representing Normal, Bold, and Italics, respectively. These fonts are downloaded by simply executing the included JCL file by you entering: DO ROMN10 (or DO =ROMN10, which will bypass transferring its information to SYSTEM/JCL). This command will in turn execute the following command:

```
download (DELETE,NAME="@ROMN10",ID=1)
```

This command tells the printer to DELETE any soft fonts currently downloaded into the printer. It then specifies that a file called ROMN10 will be used to specify a list of font names. Normally you can specify a single font name, such as ROMN10PN/SFP in its place, if you wish to download only a single font. However, by using the special format of beginning the NAME parameter's assigned text data with an AT-SIGN (@), this tells the downloader that the name following is actually another file that contains a list of one or more font names which should be downloaded in consecutive sequence. Finally, the ID parameter specifies that the font names should begin with 1. As each consecutive font specified in the ROMN10 file is downloaded, the ID value will be incremented by 1; thus the second font will have a name of 2, the third will be named 3, and so on.

For completeness, the ROMN10 font list file being exemplified here contains the following text:

```
;ROMN10 -- Roman 10 point
;
ROMN10PN/SFP ;10 point proportional normal
ROMN10PB/SFP ;10 point proportional bold
ROMN10PI/SFP ;10 point proportional italic
```

Notice that comments, which will be ignored by the downloader, begin with a semi-colon (;). In this file, the three soft fonts supported by the TIMES ROMAN 10 POINT package are listed. Just for your information, the name of each file can be "decoded" as follows: ROMN indicates TIMES ROMAN. The 10 indicates a 10 point font (a 'point' is determined to be 1/72 inch in height, thus an average 10 point character is 10/72", or 5/36" high). The following "P" represents a Proportionally spaced font, as opposed to an "F", for Fixed pitch font. The following "N" represents a Normal font, a "B" represents a Bold font, and an "I" represents an Italic font. Finally, in the 3-character file extension, the "SF" portion represents Soft Font, and the final "P" indicates a Portrait oriented font. Portrait simply indicates that the font is intended to be used on a sheet of paper in the "normal" fashion, where on an 8-1/2" x 11" sheet of paper, the 11" sides represent the left and right sides of the sheet. If the extension is "/SFL", the "L" represents Landscape, or sideways, where the 11" sides of the paper are considered the top and bottom portions of the printed sheet.

When the download program sends each of these fonts to the printer, it assigns a name of 1 to the ROMN10PN/SFP font, a name of 2 to the ROMN10PB/SFP font, and a name of 3 to the ROMN10PI/SFP font. It is critical not to alter this sequence if you are using the accompanying ROMN10/CTL printer driver with the SuperSCRIPSIT or SCRIPSIT Pro. This is because the special features supported by the driver will assume that the three fonts are named as 1, 2, and 3 for the normal, bold, and italics fonts, respectively. This way it can work flawlessly in printing out your great tome of written wisdom.

In the Print Code section of either SuperSCRIPSIT or SCRIPSIT Pro, in my own personal systems I have assigned selection codes for up to 9 fonts for print code commands 1-9. I use the "0" command to toggle soft font spacing (technically called "microspacing"). This feature is usually necessary when you use a different point-sized font, such as helvetica 14 point for headlines. In all the codes from 0 to 9, I set a character width of 0 in the assignment column which tells the word processor how many "units" wide the output code will be. Since they are invisible, non-displaying data, we will not want them to have any width as we would with =displayable= codes. For the special code 0, which I use to toggle microspacing, I have assigned to it the code sequence 27 27 0. The first 2 codes are simply 2 escape characters. The third null code is necessary to tell the soft font printer driver that the sequence definition is completed. Notice that with these soft font drivers, it is critically important to terminate each printer code sequence with a final null code.

For fonts 1 through 9, I use the following series of codes (note that the comments on the right are =only= for your reference and should not be included in the print code list, unless you want to add them to the comment section following the code list):

```
27 40 49 88 0  ;font 1
27 40 50 88 0  ;font 2
27 40 51 88 0  ;font 3
27 40 52 88 0  ;font 4
27 40 53 88 0  ;font 5
27 40 54 88 0  ;font 6
27 40 55 88 0  ;font 7
27 40 56 88 0  ;font 8
27 40 57 88 0  ;font 9
```

The first line, assigned to the 1 key, selects font 1. These code (less the final terminating null byte which will not be sent to the printer), sends to the printer the codes <ESC> (1X. <ESC> is the escape code 27. If you look in your laser printer manual, you will see that this sequence will invoke a downloaded soft font with the specified name; 1, in this example. Further note that each consecutive series of codes for 2 through 9 are exactly the same, except for the third code, which is incremented by one. In the world of computers, the decimal value of 49 is the ASCII code for the numeric character "1", 50 is the ASCII code for the numeric character "2", and so on through code 57, which is the ASCII code for the numeric character "9".

The format will change only slightly if you wish to specify a font name over 9. Notice in the print code section that these code are assigned to the special characters that are found along the top row of the keyboard, above 1-9, plus the "@" character, which allows us to define a total of 20 special code sequences.

To select font 10 using the "!" selector, we would use the code sequence:

```
27 40 49 48 88 0
```

Notice that an additional code was added. This is because the font name now consists of 2 digits; 1 and 0, respectively. Note that 48 represents "0", and 49 represents "1". Thus, the above sequence sends the codes:

```
<ESC> (10X
```

to the printer. As a final example, you can select a font name of 11 by using the selection sequence:

```
27 40 49 49 88 0
```

I suppose that the next step is to show you how to simplify downloading more than the usual three standard fonts supplied with each font set. This is actually very easy. What you can do is to edit the font list file (ROMN10 in our current example), and add the names of the additional fonts behind them. Notice that you do not have to add identifying comments after each one, but it sure does help. For example, suppose that in addition to the three 10 point Times Roman fonts included in the package, we also wanted to download the normal, bold, and italics version of the Helvetica 10 point font set, a 14 point Helvetica bold font, and the normal, bold, and italics versions of the 12 point Centrum fonts (all these fonts are available from CN-80; see the ordering section in the back, under the heading "Laser Soft Font Packages"). This download set would mimic the download set used by CN80 to compose and print both the Computer News 80 and Computer News PC magazines. Our altered font list file, ROMN10, would now look something like this:

```
ROMN10PN/SFP ;10 point proportional normal; 1
ROMN10PB/SFP ;10 point proportional bold; 2
ROMN10PI/SFP ;10 point proportional italic; 3
HELV10PN/SFP ;10 point proportional normal; 4
HELV10PB/SFP ;10 point proportional bold; 5
HELV10PI/SFP ;10 point proportional italic; 6
HELV14PB/SFP ;14 point proportional bold; 7
CENT12PN/SFP ;12 point proportional normal; 8
CENT12PB/SFP ;12 point proportional bold; 9
CENT12PI/SFP ;12 point proportional italic; 10
```

This font list would assign font names of 1 through 10 respectively to each of the consecutive fonts.

To use these fonts is fairly straight forward, and are easy to use after just a little experience. If, as I had explained earlier, we had assigned the 27 27 0 code sequence to the print code for the "0" character (the selection code inserted by pressing CLEAR and then 0 from the word processor to within the text of the document), and the font selection codes assigned to codes 1-9 and "!" (for font 10), then we can get down to business.

Using the ROMN10/CTL printer driver (selected within the OPEN DOCUMENT screen by specifying simply ROMN10), we normally use the first three fonts without giving them much of a care in the world. But suppose we wanted to veer from this droll order of things and add a heading to a section of our document using the Helvetica 14 Bold font? According to our list, HELV14PB/SFP is assigned to font number 7. Before we select it, we must first remind ourselves that especially because this font has a different point size than the normal 10 point font supported by the driver, that we must turn off microspacing, otherwise the spacing between characters will appear to be in disarray on a printout. Thus we would select font 7 by pressing the CLEAR key, which inserts our special print code character within the document, and then type the digit 7. Next we again press CLEAR and then press the digit 0. We then immediately type in the text of the header. Once done, we turn back on microspacing and reselect the font that was previously active (normally font 1; the normal type font). We do this by typing CLEAR, then 0, then CLEAR, then 1. Only then would we press the ENTER key to terminate the line.

Notice that if your title will be typed over more than one line, that you =must= select and deselect the font before terminating each consecutive line. The reason for doing things this way is due to the way that different point sizes affect vertical spacing on the printer. A larger point size will normally use a much broader vertical spacing than a small point size. Thus, to keep all lines in PERFECT alignment, we would want to be sure that the normal font supported by the printer driver is active when a carriage return or line feed is issued to the printer. This way the formatting on the printout will not go awry.

BCX BUG

While preparing a spreadsheet under BCX for publication in this issue, I discovered that there has been a minor bug in BCX since day 1. It is so minor that the many users of BCX have never noticed or reported it. It only happens when you print out or save the spreadsheet under the FORMULA format or the VC (VisiCalc) format. Since most users are moving FROM VisiCalc to BCX, and not the other way around, those users have not noticed the small bug. Also, apparently users who have printed out the formulas for their spreadsheets have not noticed the small bug either. The bug consists of this: when an ASCII text version of the formulas are printed or saved to disk (thus not saved in standard format), if the cell's formatting is specifically set to floating point, dollar, rounded, or integer, BCX would not send out the specific format commands to define them.

This bug is considered so minor that new versions =will not= be sent out to BCX users, as would be CN80's policy if the bug had been an important one. They can instead install the following patches to update their programs, or send all of their original disks back to CN80 for updating. The following patch can be applied to either BCX/OVL, or BCX64/OVL, both found on the first disk:

```
. BCX/FIX
. Patch BCX/OVL and BCX64/OVL
. to fix bug in formula save
. Upgrades version 1.4 to 1.5
. Nov 1993 David Goben
.
D06,B7=35
F06,B7=34
D23,06=00 00 CB
F23,06=DD CB 00
.EOP
```

Use the BUILD command to create this file and call it BCX/FIX (note that TED =WILL NOT= work, since it will insert a terminating character to the file that will prevent PATCH from using the file correctly). Apply the patch to BCX/OVL by entering the command PATCH BCX/OVL BCX, and patch BCX64/OVL by using the command PATCH BCX64/OVL BCX.

If you use the MegaMEM versions, BCXM and BCXM64, both found on the second disk, create a file called BCXM/FIX using BUILD and enter the following text:

```
. BCXM/FIX
. Patch BCXM/OVL and BCXM64/OVL
. to fix bug in formula save
. Upgrades version 1.4 to 1.5
. Nov 1993 David Goben
.
D07,1D=35
F07,1D=34
D23,6C=00 00 CB
F23,6C=DD CB 00
.EOP
```

And life goes marching on...

CHECK BOOK BALANCING

Everyone balances their checkbooks differently. Some don't balance them at all. But the fact is, balancing it can be a relatively painless process. I maintain my own by month, although I update my checkbook register every day, entering whatever checks I wrote during the day into the register in the evening while I usually have the computer on anyway. Once I receive my bank statement, usually taking the bad news in stride, I reconcile my checkbook against my bank statement. For years this had been a manual task that in truth required minimal fuss. But one day I sat down with the BCX spreadsheet (available from CN80, $109 US, but a lot cheaper if you take advantage of the 10% discount special that ends December 31) and for fun wrote a checkbook balancing template (a template is a fancy term for a file that in itself will not be altered, although varying copies of it will usually be saved). After experimenting with it for a while, I added more bells and whistles, and also at the same time developed a usage regimen that makes using the spreadsheet a real breeze. I now find it much easier to use than the old manual updating method.

CREATING CHKBOOK/BCX

Program Listing One in the back of this magazine is the result. You can type this listing into a text editor or word processor, such as TED, EDIT-4, SCRIPSIT, TYPITALL, or any other, and save the result as an ASCII file. Once typed in, it will look like figure 1 once it is loaded into BCX (this figure is also in the back). You can also order the next Disk Series Disk from CN80 and get the file already typed in and stored in BCX format.

Once you have saved the file in ASCII format, saving it to a file named CHKBOOK/ASC, you can load it into BCX by entering the command: BCX CHKBOOK/ASC. BCX will load the file and format it as required. Be sure to check for any obvious errors before going on. If you notice any, exit BCX and edit the CHKBOOK/ASC file to correct them (you can also correct any errors from within BCX by manipulating the individual cells, though greater knowledge of the spreadsheet format is required).

Assuming that all is well, you will notice that the cell cursor (the inverse video block that you can move around the screen using the arrow keys), should be located over cell A3, on the value 1980. The location of the cell cursor can be checked in two ways: you can examine the coordinate displayed in the top left corner of the screen, or check the column letter and row numbers on the top and left sides of the spreadsheet for which column letter(s) and row number(s) are displayed in =normal= video (as opposed to reverse video).

The FIRST thing you should do is to re-save this template in =standard= BCX format. This will allow you to reload the template later much faster than with using the CHKBOOK/ASC format. To do that, you would type the character sequence "/SSS" without typing the quotation marks. Thus you would press the "/" key, and then type the letter "S" three times, which navigates you through a series of menus. You will now be prompted for a file to save this template under in the upper left corner of the screen. Type in the name CHKBOOK/BCX and press ENTER (you can also include a drive number, such as CHKBOOK/BCX:1 to save the file to Drive :1. Also, use the F2 function key to delete any typing mistakes; the arrow keys will not work). Once saved, anytime you enter BCX again, you can use the DOS command BCX CHKBOOK/BCX to quickly load the checkbook template at the same time you enter BCX and immediately get to work, or if you are already in BCX, you can use the command "/SLL" and enter CHKBOOK/BCX.

CREATING CHKBOOK/USR

Once saved, the next thing we would like to do is to create 3 user-defined keys to speed the usage of the spreadsheet. These user keys will be designed to allow you to replicate additional entry lines with no great fuss or bother. Once created, you can use SHIFT-F1 (while holding down the SHIFT key, tap the F1 key) to create one additional entry line, SHIFT-F2 to create two additional entry lines, and SHIFT-F3 to create 3 additional entry lines.

Perhaps the easiest way to create CHKBOOK/USR is to return to your text editor and create an ASCII file called CHKBOOK/USR, and type in the three lines display in Program Listing Two. However, this defeats the fun of creating user-defined key sequences right from within BCX itself. A few users have been a bit nervous about creating such key sequences, although there is actually no real pain involved. Indeed, the user keys stored in CHKBOOK/USR are powerful, but they are also easy to create. Indeed, all three are similar in structure, and involve simply positioning the cell cursor to the position after the last entry line, inserting a new line, going up to the last entry line, and replicating the line to the new blank line.

For practice, let us do this operation manually at first. Follow these easy steps wile in BCX with the CHKBOOK/BCX file loaded:

1) From no matter where the cell cursor is currently located, press SHIFT-LEFTARROW, even if you are already on the left-most column.

2) Now press SHIFT-DOWNARROW, even if you are already on the bottom row.

3) Now press the UPARROW key 9 times in succession. This will place you on row 10, on the line that contains the note about replicating, immediately below the last entry line.

4) Type the key sequence "/IR". This will insert a blank row below the last entry line.

5) Press UPARROW once. This will place you on the last entry line.

6) Type the key sequence "/RD" to select defining a replication range. You will be asked to define a range of cells. Press the "." key to tell BCX that the starting point is selected. You must now enter an ending coordinate for the range. To do so, simply type SHIFT-RIGHTARROW and press the ENTER key. This will return you to the first cell of the range, and you will be prompted for the destination range.

7) Press DOWNARROW once to place yourself on the new blank line, then press the ENTER key. This will tell BCX that you have selected the destination range as a single coordinate. You will notice that BCX will then begin making a copy of the last entry line in the blank line's space. However, do not panic when BCX suddenly beeps at you.

8) BCX will pause because it has encountered a formula that employ specific coordinates in their formulas. In the top left corner of the screen, in the edit line (the black line), you will see the following text:

```
F9>F10.F10: +F8+E9-D9
```

This is translated as follows: BCX is replicating cell F9 to the range F10 to F10 (one cell). The formula contained in the cell F9 contains the data: +F8+E9-D9. This formula is very simple. What it does is takes the value stored at cell F8, adds it to the value stored at cell E9, and subtracts from this sum the value stored at cell D9. Meanwhile, BCX is asking you if you do not want to change the coordinate (currently pointing at the F8 reference), or if you want to apply a relative offset to the coordinate. Since we do not want to always process the very same cells, but would rather process cells that would be in relation to the new line, we would type the "R" key, which will tell BCX to apply a relative offset to the coordinate (this will technically change the coordinate in the formula from F8 to F9). You will be queried for the other two coordinates as well. Be sure to answer "R" to both of them. Thus we dealt with the entire query sequence for the cell by simply typing the "R" key three times.

You will then be queries for another cell at coordinate H9. This line will be displayed on the edit line as follows:

```
H9>H10.H10: @IF(G9>0,E9-D9,0)
```

Again, you will be applying relative offsets to all three of the cells in question: G9, E9, and D9; therefore again answer with "R" three times.

9) Once the cells at F9 and H9 are processed, the replication procedure is completed, and the cell cursor moves back to cell A9; the first cell in the row we had just replicated to the row beneath it. You have just managed to replicate a row of cells. From following along, I am sure you can see why I chose to simplify this time-consuming process with a set of quick and easy user keys.

To define the first user key (F1), type the key sequence "/UD1". Notice that the text "<1>: USER" appeared in the upper right corner of the screen, telling us that we are in the user key define mode for key F1. Now, anything you type will be recorded into the user key buffer as commands to be assigned to the F1 key. The key sequences you will type in will be a simple repeat of steps 1 through 9 discussed previously. Notice that if you had not first delete the row you had previously created that the data displayed for step 8 will be one row higher, but do not panic; all will work out OK, since you will in fact be replicating from a row that is greater, to a new blank row that is likewise greater. Once you are through with this process, press the BREAK key. BCX will beep, and the "<1>: USER" text displayed in the upper right corner of the screen will disappear. You have just turned off the USER define mode.

Before going on, you should test your new masterpiece. Regardless of the current position of the cell cursor, press SHIFT-F1. When you do this, your exact keystrokes typed during the definition (or recording) session will be repeated, although this time at perhaps at a rate several times faster than you can actually type. If all went well, viola! You have mastered user-keys and simplified the use of the checkbook template.

The next step is to define the sequence for the F2 key, to create two additional lines instead of just one. To begin defining the F2 key, you would first type in "/UD2", and then repeat the instructions in steps 1-9, with the following two exceptions:

4A) In step 4, instead of typing "/IR" once, type it twice, thus typing "/IR/IR" so that two lines will be inserted.

7A) In step 7, do the following key sequence instead: Press DOWNARROW to position yourself at the first blank line. Next press the period key "."

to indicate a range, and then type DOWNARROW and then ENTER.

The final step is to define the sequence for the F3 key, to create three additional lines instead of just one. To begin defining the F3 key, you would first type in "/UD3", and then repeat the instructions in steps 1-9, with the following two exceptions:

4B) In step 4, instead of typing "/IR" once, type it three times, thus typing "/IR/IR/IR" so that three lines will be inserted.

7A) In step 7, do the following key sequence instead: Press DOWNARROW to position yourself at the first blank line. Next press the period key "." to indicate a range, and then type DOWNARROW =twice= and then ENTER.

Now that you have created your new user keys, you had better save the fruits of your labor. To do that, type "/US", and answer the file name prompt with CHKBOOK/USR, and press the ENTER key. You can of course include a drive number if you wish.

USING CHKBOOK/BCX

Whew! Now we can get about doing the good stuff -- USING the template. Be sure that you have a fresh version of CHKBOOK/BCX by typing "/SLL" and answering the prompt with CHKBOOK/BCX and pressing the ENTER key. If you have left BCX, or if the USER keys are not present (and even if they are), it is always a good idea to load the CHKBOOK/USR file as soon as you go into BCX. To do this, type "/UL" and answer the prompt with CHKBOOK/USR and press ENTER.

You would start you check entries by typing in the year in cell A3. For example, suppose we were to start the year 1994 off with this new spreadsheet, we would type 1994 here and either press the ENTER key to lock it in, or use one of the arrow keys, which will also lock it it, and at the same time allow us to move to a different portion of the spreadsheet. Next, at coordinate D2, type in the starting date of this register. The date best used is the day following the date on your last bank statement. At Cell F2, enter the ending balance from your last bank statement as the Beginning Balance of your new register. You do not yet need to worry about the ending date for cell D3, or the ending balance in cell F3.

Now beginning at cell A8, begin entering all of your 'outstanding' checks and additional transactions, such as ATM withdraws, deposits, and service charges. The "Ref. #" would usually be the check number. If there is nothing, you can quickly blank this by typing "/B" and then pressing RIGHTARROW to go to the next column. In the column to the right, under the DATE heading, type the date of the transaction. In the next column, under PARTY, type in the name of the party concerned, such as the person or company you are writing a check to, ATM for an Automatic Teller Machine withdraw/deposit, and then move right to either the DEBIT (you paying out) or DEPOSIT (you paying in) column, and enter the amount. For example, if you wrote a check, you would enter the amount of the check in the DEBIT column. Notice that you should =never= type in negative values. CHKBOOK takes care of this all by itself. If you are placing money into your checking account, enter the value in the DEPOSIT column.

Whenever you get to the last entry line and will need more, you can either type data into the last entry, and then replicate additional lines by using one or any combination of the SHIFT-F1, SHIFT-F2, or SHIFT-F3 user-defined keys, or you can create more lines before typing on the line. Either way, the formulas are copied correctly, although the latter method is cleaner for shifting debit/deposit situations.

Once you have typed in all outstanding transactions not covered by the last bank statement, you should then go about typing in all transactions (hopefully) recorded in your checkbook concerning subsequent activity to the period covered by your last statement (technically, this should be under the umbrella of outstanding activity, but a great deal of people see checking activity not covered by the last statement period as not outstanding, but rather as "current" activity).

Once all this is done, you should save a copy of the current sheet. To do this, type "/SSS" and answer the prompt with the name of the file you wish to save it to, such as JAN94 (no extension is required, although you can use one. You can also enter a drive number, if you plan to keep your checking records on a specific data disk). You may also wish to first update all totals by pressing "!" (SHIFT-1) to force a recalculation of your register. This also allows you to visually check your math in your checkbook.

Now whenever you need to update the JAN94 record because of new transactions previous to the next bank statement, all you need to do is enter BCX JAN94 from the DOS Ready prompt, and then be sure to load the CHKBOOK/USR file using the "/UL" command.

CLEARING TRANSACTIONS

Once you have received your next bank statement, bring up your current record by entering BCX JAN94, load the CHKBOOK/USR file using "/UL", and go through the transactions. At cell D3, type in the date of the bank statement. At cell F3, type in the ending balance.

Now place the cell cursor at coordinate G8, and type a 1 (or any numeric non-zero value) to flag that the transaction is cleared. If that transaction has not yet cleared the bank, leave this cell blank (if you had accidentally entered a value, which can be any value greater than 0, you can either blank it by typing "/B" and ENTER in that cell, or simply entering a value of 0. Go through all your transactions, flagging those that are recorded on your bank statement. The reason that I allow any value in the cleared status column is that some people wish to add special tags to different types of transactions. Thus you could use 1 for checks, 2 for depositions, 3 for automatic deposits, 4 for service charges, or whatever you might choose.

Once you have processed all the transactions, press "!" to recalculate the spreadsheet, and then press SHIFT-DOWNARROW to move to the bottom of the spreadsheet. If the very bottom value in column "D" is anything other than zero, then you have made an error somewhere along the line. Check through your transactions again, or in desperation, start over by reloading the register and trying again. Once this value is zero, you can congratulate yourself on balancing your checkbook. You should then save the register to your JAN94 file.

As a last step, you may wish to print a hard copy of your current register for subsequent physical reference in your files. With your printer turned on, type "/PP" and answer the range prompt with "<.>" and press ENTER. If you can initialize your printer to 12 CPI, you may wish to do so, and then answer the range prompt with "<.>;128", so that the entire spreadsheet will print on a single column of paper. If not, but you still wish to print on only one sheet width of paper, you may wish to answer the range prompt in this way: type SHIFT-UPARROW, SHIFT-LEFTARROW, ".", SHIFT-DOWNARROW, SHIFT-RIGHTARROW, LEFTARROW, ENTER. This method will cut off the last column (not visible on the BCX screen anyway. The last column is for keeping track of CLEARED transaction values.

PREPARING NEXT MONTH

You are now ready to set up for next month. To do this, change the year at cell A3 if it has changed. At cell D2, enter the day after the date of the last bank statement. Use the "TO" date listed below it as a guide. Next, either blank the date at D3, or ignore it until the =next= statement. At F2, type in the value displayed below it at F3. At F3, enter 0.

Now go to cell A8, the first transaction for the last register. If the transaction has cleared by having a value stored in column G, delete that row by typing "/DR". Delete =all= transactions that have been cleared by your last bank statement. Afterward, what will be left is the transactions that have not yet cleared the bank on a statement. Recalculate the spreadsheet by typing "!".

Now save the new register to a new name using "/SSS". Use the next month's name, such as FEB94 as the name of the next file.

And there you have it; another endless cycle. But one a lot easier to deal with; all with BCX and the CHKBOOK template.

Gee, I hope CN80 readers appreciate my gabbiness this month. Until next month, Happy Computing!
-David Goben

Submitting Articles and Programs

Contributions to CN80 are valued from anyone. We want CN80 to be as varied and as helpful as possible.

Programs and articles must be on a disk saved in ASCII and have a hard copy enclosed.

Programs submitted for publication in CN80 must be released into the Public Domain.

Shareware and PD programs for the File Cabinet Library are welcome and will be reviewed in future issues.

Mail to:
Computer News 80
PO Box 680
Casper, WY 82602

Material submitted cannot be returned.

INVENTORY BASIC PROGRAM

(Program Listing Number Three)

by Robert Knowles

There are much better ways of doing this but this will give you an idea of just how it is done. This is not just a show program, it will work, for a couple of dozen items its not to bad but if you have a lot of things to keep track of there are better ways of doing it.

To begin with you must know how many items you have in stock, you might say "that's to much work to go and look up every item just to use this program" and I would agree so I wrote the program so you don't have to do that, but to get ahead of ourselves is to get confused so we will take it one step at a time.

Lines 10 and 20 are input lines and you must have one for each item in stock, you will see that I used a letter and a number for the variable, if you have an input line you must have a place to put what ever it is you input, if you use all letters you will soon have more letters than you like, but if you use a letter with a number it will help you keep track of what it is you are doing. These inputs are held in memory for latter use.

The next line is 30 and is an other input line, that works like this, if you sell five dozen pencils then you must enter that stock number five times, pressing enter after each one. As you can see the variable has a dollar sign, that sign means string so there must be a string some where in our program, the next line has "DONE" in it, when you have a string you must have a dollar sign and the string must be in double quotes. "DONE" is there so that we can get out of the input part of our program, every-one knows to get out of input we can always push <break> but that makes us look like we don't know what we're doing, this may be true but we don't want every-one to know it so we make our programs look as good as we can. The next line is IF A$="THE STOCK NUMBER" GOTO 80, line 80 tell as that if the stock number for pencils is entered then add one to C1 and go back to line 40 for another stock number, and when we have finished with all the stock numbers and pushed <ENTER> for the last time we enter "DONE "in CAPS, WHY CAPS? remember what I said about what happens if you don't give the computer what it is looking for. When we type "DONE" the program jumps to line 100 and goes on from there. Now we're going to make a hard copy of what we sold and what we have left in stock so instead of going around counting everything, you look at yesterdays report. Line 100 is just LPRINT to leave a blank line at the top of our paper, we remember LPRINT means send this to the printer but if your printer is not on it will do no good so always check, line 110 takes the date from the computer so you must be sure the date is correct, line 130 is D1 (which will be what is left in stock) equals B1 (which is what is in stock now) Minus C1 (what was sold), only the item number will change and you must have a matching number for every item in stock, but the number must change for each stock number on your list, line 140 is what is in stock, how many we sold and how many left in stock.

I thought of a lot of things to do to this program but I left a lot of room for you to do what ever you can think of, try to make it a better program, every time you try something and it doesn't work and you learn just how it does work, it will make you a better programer.

I had a complaint about the menu programs I like to write and I thought about it and he is right, each trip through the menu does indeed put a number on the stack but he is wrong in saying that what I did is wrong, right is does the program work and work well? Yes it does, so I must have done it right. I took a menu program that used a lot of trips through the menu and ran it into the ground and yes the stack will fill up and you will get an out of memory, but its not normal to go through the menu that many times, you open the program which is one, you do your work, go back to the menu and check your work which is two then back to the menu and close. There is more than enough room, even if you have trouble getting your work right, but if you do get an out of memory then all you do is type close then run the program again select two to have a look at just what it is you did and what you must do to get your file right, then use the extend program so that you don't lose the work you have already done.

-Robert Knowles

REMINDER

If the last four digits on your mailing label are 93/12, then this is your last issue. Time to get your renewal in the mail.

MOVING?

Remember to send us your new address.

RENUM3/BAS A (little) better Re-Number utility for 1.3 BASIC. Adapted from CodeWorks RENUM.BAS (Program Listing Number Four.)
by Henry H. Herrdegen.

Here is another one for us TRSDOS 1.3 Dinosaurs (still any alive out there?). If you, like me have cursed the renumber facility in its BASIC, then this old, 1987, CW program, which I have changed a bit, condensed and renumbered, could interest you. I got into the habit to develop and/or change all my programs in NEWDOS with its superior renumber and reference facilities, and "ACE" the finished product onto the 1.3 disk, neglecting this little gem until now.

It still isn't perfect, it can not move a program block around, as it can only use an old starting line as the new one. But it can renumber blocks within the program, tell you if the increment chosen will allow it without crashing into a following block, and will correct all line references in the original and renumbered portion of the program. That's what the original "NAME" (what an irrelevant name!) can not. And it does not leave any of these annoying spaces behind the changed GOTOs and GOSUBs to be removed.

But . . . , it is a snail. It took a bit over 6 minutes to renumber itself. I shaved a few seconds by moving the three subroutines to the top, eliminated some unnecessary reference line reading, but nothing significant. CW claims that compiling it would reduce the 4 minutes needed for some program to 45 seconds. Having no compiler, I can't verify that.

A step by step explanation of the how and why the program is doing what it's doing took seven pages in the #9 issue of the CodeWorks magazine, too long to repeat here. Just a short description should do. I have left the original, explanatory rem lines in, which are a great help to understand the program.

After the initializing L 10, the program starts with a title and instruction screen (L 31-45), asks for the 4 inputs: target (ASCII!) filename, start-, end-line, and increment, and then creates two parallel arrays, A() and B(), reads the lines and puts the line numbers into A() (L 55), then checks which ones have to be changed, and puts them into B() (L 61), leaving a 0 if no change is requested. It checks if the increment requested is possible in L 63-66.

L 67 then prints 3 columns of numbers on the screen, the line count, the A() array and the B() array. Just to see if it's working. All zeroes in the B() column mean something is fishy. You can make this line, and lines 73 and 88 reference lines, if you don't want to watch on screen what it's doing, and it will speed it up by around 5%. But then, if you had an address to a non existing line, the message from line 28 will have scrolled away when you come back from your coffee break. I have put the two PRINT statements in separate lines, so they can be deleted altogether, but if you want to delete L 67, you will have to change the address in line 63.

The program does not change the original target file, L 69 creates the /NEW extension for the renumbered (also ASCII) file. Then it loads the target file again, reads the lines one character at a time, building up a temporary string 'C', in order to catch any keywords, so the reference numbers will be changed also. The two loops, lines 71-90, with the embedded loop L 78-86 does that job. The "Q" loop checks for the keywords, with the L 12-16 subroutine doing the number replacement. If a "ON" was found (L 77) then L 18-25 check for a comma after the number, and catch the following number. Both the loop Q's subroutines jump into the L 27-30 routine, to register any possibly unreferenced line numbers.

I added the keyword RE'SUME' into the check loop as L 82, the only one of the three (RESUME, RESTORE, RETURN) CW had left out, and which uses a line number in our BASIC, and added the code in line 76 to bypass reading of reference lines (after the line number has been updated) in the Q loop, preventing the unnecessary, time consuming, step by step reading of a line which has no changes coming anyway, and the J3 flag (L 77), as well as line 87 in order to print a remark hung onto an ON - GOTO line after an apostrophe (').

Some variable names are changed in order to permit me to DEFine INTegers and STRings in L 10, without having to use type declaration tags in the body of the program (a bad habit of mine).

One precautionary note: the "Ending at line number" asked for is the line number UP TO which the renumbering will go, NOT including this line! So, if you are renumbering to the end of the program, don't enter the last line number, just <ENTER>! There is no check if a renumbered line will exceed 255 characters with longer reference numbers inserted, and a "String too long" error will result, but a line longer then 240 characters will not result in an error, it will just not ASCII save properly. If you routinely handle long line programs, maybe squeeze in a line such as "87 IF LEN(C)>240 THEN CLOSE: PRINT "Line"I" is too long! Can't continue.": END", by renumbering start at: 86, <ENTER>, 2; and, after typing the line 87: start at: 88, <ENTER>, 1:

The limitation that the starting line can not be changed, can be overcome with a few little tricks and a lot of saving, loading, renaming, etc. Take a program numbered with 3 lines from 10 to 30, then 100 to end. You want to renumber in blocks, with 2 increment. Renumber 10-100, increment 2. Now the lines are 10, 12, 14, 100-end. Insert a ref line 18, then renumber 18-180, incr. 2. That makes it 10-14, 18-34, 190- end. Insert a line 38, renum 38 to whatever, and so on. Then delete the inserted ref lines, and blocks are numbered 10-14, 20-34, 40- etc.
- Henry H. Herrdegen

SHOULD YOU UPGRADE YOUR MODEL 4 TO 128K?

by Gary W. Shanafelt

If you keep up with all the product advertisements in this publication, you'll notice that one of them is a set of memory chips to give you 128k of memory if you have a Model 4 TRS-80. I've had 128k on my Model 4 ever since I bought it ten years ago, and upgraded my second Model 4 as soon as I got it. The extra memory is not some sort of off-the-wall hacker invention; the Model 4 was designed for it from the beginning, and every Model 4 motherboard has empty sockets waiting to receive the optional chips. If you have only a 64k system, you might wonder what good all the extra memory actually does you. People have answered that question before, but I think the answer bears repeating.

The memory is accessed by @BANK, a special SVC (supervisor call) built into the Model 4 operating system. The Z80, the TRS-80 processor, can directly address only 64k of memory at a time. What @BANK does is to make different 32k banks of memory available to the processor at need, so that a total of 128k of data can be processed even though only 64k is available at any one time. Whether all that memory actually gets used, though, depends on the application program. A program has to include routines to use the @BANK SVC in the DOS to first check if the extra banks of memory are available, and then to determine when to switch them in (switching out the regular banks).

A program which has the necessary routines gives you a striking increase in work efficiency. Model 4 Visicalc offers 26k of free memory for a spreadsheet on a system with 64k, but 90k on a 128k system. The word processor LeScript is so big that you really can't use it effectively with a standard memory configuration. You get only 18k free memory on a 64k system (I got 30k with Scripsit on my old 48k Model I!) -- but 83k with a 128k Model 4. Allwrite, my current word processor, uses the extra memory not to increase the potential length of its documents, but to allow you to edit three files in memory at the same time. And if you have David Goben's hi-res editor, MagicDraw, you'll know that the extra memory can be used to edit several images at once and move blocks of graphics data between them.

Now the bad news: Despite the above example, most Model 4 programs don't have any routines to use @BANK. So, no matter how much memory you put in your machine, they will never think there's more than 64k. The main culpret here -- or rather, the main program that people wish DID access that additional memory -- is Model 4 BASIC. BASIC gives you only 29k for your programs, less than on the Model 3. Some machine language tricks and a DOS add-on SVC called @EXMEM allow storage of data in the extra 64k memory if you have it, but not program lines themselves. It would be computer heaven for people like me to type ?MEM from BASIC and see a figure like 80000 appear, but no chance.

So if your favorite program doesn't have support for the full 128k, what good is the extra memory? The answer is: a MemDISK. The MemDISK driver is built into Model 4 LS-DOS; you can even use regular memory but that leaves little space for your application programs. What MemDISK is, is a simulated disk drive in memory. With a 128k machine, you can create a MemDISK that gives you 57k free for storing disk programs. That effectively gives you three disk drives instead of two (or maybe "2 1/2" would be a better way of putting it) without having to purchase an external drive unit.

Why should you want a MemDISK? Well, there are a lot of operations that are a whole lot easier if you have one, and a whole lot more hassle if you don't. Let's say I want to copy a 40k file from one data disk to another data disk. How do I do that with just two drives? I have to put the data disk in drive :1 and my system disk in drive :0. Then, I would copy the file from drive :1 to drive :0, following which I would switch disks in drive :1 and copy the file from :0 to back to :1. Finally, I have to remove the file from the system disk. This all works only if the system disk has 40k of free space on it (and mine doesn't). With a MemDisk as drive :2, though, you simply copy the file from :1 to :2, put the destination disk in :1, and copy from :2 back to :1.

Or let's say you want to copy multiple files from one data disk to another, though not the entire disk (so Diskcopy won't help you). You can create a MemDisk, then copy the essential system files to it from drive :0. There should also be room to put FORMAT and BACKUP there. Finally, you make the MemDISK your system drive with the DOS SYSTEM (SWAP) command. With the system files in memory, all your programs will run faster. More specifically, you no longer need a system disk in either of your regular drives. You can put the source data disk in one drive, the destination data disk in the other, and copy or backup all files you desire.

A MemDISK system drive is almost essential if you use one of the programs now available to read and write MS-DOS disks on your machine. I transfer a lot of files back and forth, from MS-DOS data disks to LS-DOS data disks, often a whole disk of files at a time -- printer fonts, text files, GIF pictures. With all the system files in the extra memory, all I have to do is slip the MS-DOS disk into one drive, the LS-DOS disk into the other, and begin copying.

Setting up a MemDISK as a system drive sounds complicated, but the process is easily automated with a JCL (job control language) file. Even faster is William Bowman's GrafDISK utility. While GrafDISK is designed for use on a 128k Model 4 with a hi-res board, it includes an option to run with the 128k alone. Once you get your MemDISK (in this case, GrafDISK) set up with the system files, you save the whole thing to disk. The next time you want to set it up, you just load the memory dump from your disk back into memory -- execution time leaves a JCL in the dust.

You can even run a MemDISK from LDOS in Model 3 mode on your 128k Model 4, thanks to David Goben. A few years ago, David wrote a really clever Model 3 MemDISK program. I say "clever" because he made his Model 3 MemDISK fully compatible with Model 4 MemDisk. You can store a file in a MemDISK in native Model 4 mode, then hit the RESET button, boot up with Model 3 LDOS, and run David's MemDISK program to get full access to the file in Model 3 mode. The process also works in reverse.

As you can probably tell, for me the question about 128k is not "Should you have it?" but rather, "Why should you NOT have it?" The cost/benefit ratio is so great that I find it hard to imagine anyone being satisfied with just 64k. The main drawback, I suppose, is the hassle of installing the chips. This is easy enough to do; and despite dire warnings about static electricity zapping the IC's in the instructions, I've plugged in a number of sets and never had any trouble. But in all honesty, it took me years to screw up the courage to pull my computer apart to replace a disk drive and even more years to tamper with the motherboard (the original 128k was installed by Radio Shack). If you don't feel safe working on your hardware yourself, you should find a friend who can do it for you. For once you have that extra 64k of memory up and available, you'll wonder why you ever waited so long to get it.
-Gary W. Shanafelt

(Editor's note) Upgrade kits are $12.95 and consist of 8 memory chips which are all that are needed for the Model 4/4D Gate Array Computers or Model 4P. If you have a Model 4 Non-Gate Array (one that has the RS-232 that sticks straight down on the bottom of the computer) it will require a PAL chip in addition to the eight memory chips. PAL chips are priced at $8.00. Add for S & H. Easy to follow instructions and memory test disk are sent with each order.

The *Allwrite* word processing program has not been available for many years now. Legal copies of *Allwrite* can only be obtained by purchasing a used copy from some computer user who no longer has a need for it.

Scripsit Pro does require and uses 128K of memory. Which in our opinion is the superior wordprocessor for the Model 4, and is born out by the testimonies of those who use it and by the individuals that have just started using it. The additional advantage to using a program that is currently available is that you have the full from support of CN80. This is not true for the older programs that are no longer being sold except on the used market. Your only choice with a used program is to search out the orginal owner and see if he can help you. In most cases the orginal owner does not have any intention of supplying user support to programs that he sells to you. The price paid for currently marketed programs, although higher than what you may purchase a used program for, has included in its sale price full support to the user. The lack of support also applies to those publishers and authors who have long since gone out of business and are no longer available to offer you assistance with a program.

That is why we say "It pays to subscribe to CN80." We can't help you with every program ever written for the TRS-80 computers, but we do try to find the answers for you. And we do offer full support on all the programs that we publish. -Ed.

OPEN FORUM

LTR: Using the DW2/CTL Printer Control File, SCRIPSIT Pro does a letter-perfect job of justifying proportional print on my TRS-80 Daisy Wheel II printer. Several of the DMP Printer Control Files that came with SCRIPSIT Pro worked O.K. with my Tandy DMP 300 printer in the Tandy mode. They did bold facing, underlining, changing pitch, etc. O.K. However none of them did a decent job of justifying proportional print. The DMP2100 printer control file appeared to be the closest match for the DMP 300.

I printed out the DMP2100/CTL file using the (Hex) parameter. With a little guidance from the SCRIPSIT Pro Manual on writing your own printer control files, I quickly discovered the 96 byte proportional width table in the DMP2100/CTL file. Using the *Super Utility* program I modified the width table in the file to conform with the proportional Elite character widths listed in the DMP 300 manual.

The Tandy DMP 300 Printer has a choice of type faces including Courier, Elite, etc. Neither Courier nor Elite denotes pitch but rather type styles. Each of the two type faces is available in 10 or 12 pitch or in proportional pitch. I like the appearance of the Elite type style better than the Courier so I have set my Tandy DMP 300 printer to default to the Elite type face. The width table for proportional Elite does not properly justify proportional Courier which has a different width table.

I modified the width table in a copy of the DMP2100/CTL file to conform with the width data for the Elite type face and then renamed the modified DMP2100/CTL file to conform with the width data for the Courier type face and renamed this modified DMP2100/CTL file to DMP300C/CTL.

If any *Computer News 80* readers would like to have copies on a disk of my DMP300/CTL and DMP300C/CTL files for use with SCRIPSIT Pro, I would be happy make copies of my two files available to them. If you think that there might be some readers interested in obtaining copies of these files, and you see fit to do so, please feel free to publish a note to this effect in a future issue of CN80. All I ask is that anyone interested send me a formatted disk and a self-addressed return diskette mailer with adequate postage affixed thereto.

I'm pleased and very happy with SCRIPSIT Pro. Thanks so much for making it available to me.
-Harold Hendricks, 906 S. Viola St. Milbank, SD 57252.

Q: I am a subscriber of CN80. I have a Model 4P that I have had for 8 years. I do General Ledger and Payroll for the General Ledger for the Model 4. Only on one or two occasions have I had to clear the buffer in order to Post the remaining entries.

What I want to know is how hard is it to install a hard drive?

I would also like to have a program to do mailing labels? This would require more space that I have. Also is there a tax preparation program for the 4P? I am also interested in updating my date entry.
-C. L. Yuba City CA 95001

A: For installing a hard drive to a 4P you simply plug the external hard drive onto the 50 pin I/O card edge connector that is on the back of your computer, external hard drives come with their own separate power supply and control board and cables. You do need to build a new systems disk called a Hard Drive Boot disk.

To upgrade your current DOS operating system so that it will accept the current date use David Goben's T62DOSXT program.

For a program to do mailing labels, there are several available, some more sophisticated than others. They are available from the File Cabinet collection or you can use pfs:File for mailing labels which can sort by zip code. Or you can use your word processing program for mailing labels, and there are mailing list programs that were printed in our past issues and included on our disk series. There are so many ways to do mailing labels that it is almost impossible to recommend a single program unless we have more information on your mailing needs.

One way to gain space for files and programs is to upgrade your model 4P to double-sided disk drives. Installing either 5-1/4 for 360K of storage, or 3-1/2 drives that give you 720K of storage. One Model 4P that we use has one of each. A 5-1/4 in drive zero and a 3-1/2 in drive one. This combination gives us a way to use our existing 5-1/4 disks and have 720K to store data on. The problem is, as with any system, there is no "one-size-fits-all." You need to tailor your system and programs to your needs.

CHKBOOK/ASC PROGRAM LISING NUMBER ONE by David Goben

Please note: This program is printed in three columns to conserve space, the middle column follows the left hand column, i.e. >B7:/-- follows >A7:/-- and >B14:"Total Item follows >A14:-----> l.

```
>A0:
>C0:"DAVID'S CH
>D0:"ECKBOOK BA
>E0:"LANCE TEMP
>F0:"LATE
>A1:/--
>B1:"-------+--
>C1:/--
>D1:/--
>E1:"+--------+
>F1:/--
>G1:"+---------
>H1:/--
>A2:"Register Y
>B2:"ear:    l
>C2:"From:
>D2:"Jan 01
>E2:"l Beg Bal:
>F2:/F$0
>G2:"l Expected
>A3:1980
>B3:"        l
>C3:"To  :
>D3:"Jan 31
>E3:"l End Bal:
>F3:/F$0
>G3:"l <---Value
>A4:/--
>B4:"-------+--
>C4:/--
>D4:/--
>E4:"+--------+
>F4:/--
>G4:"+---------
>H4:/--
>B5:"Xaction
>C5:"Concerned
>F5:"Cumulative
>G5:/F>"<CLEAR >
>H5:/F>"Xaction
>A6:"Ref. #
>B6:"Date
>C6:"Party
>D6:/F>"Debit
>E6:/F>"Deposit
>F6:/F>"Balance
>G6:/F>"<STATUS>
>H6:/F>"Cleared
>A7:/--
>B7:/--
>C7:/--
>D7:/--
>E7:/--
>F7:/--
>G7:/--
>H7:/--
>A8:/FF/F<0
>B8:"Jan 01
>D8:/F$0
>E8:/F$0
>F8:/F$+F2+E8-D8
>H8:/F$@IF(G8>0,E8-D8,0)
>A9:/FF/F<0
>B9:"Jan 01
>D9:/F$0
>E9:/F$0
>F9:/F$+F8+E9-D9
>H9:/F$@IF(G9>0,E9-D9,0)
>A10:/F>">>---- NOT
>B10:"E:  REPLIC
>C10:"ATE LINE I
>D10:"MMEDIATELY
>E10:" ABOVE TO
>F10:"ADD MORE R
>G10:"OWS ----<<
>A11:/-=
>B11:/-=
>C11:/-=
>D11:/-=
>E11:/-=
>F11:/-=
>G11:/-=
>H11:/-=
>C12:"TOTALS:
>D12:/F$@SUM(D8...D10)
>E12:/F$@SUM(E8...E10)
>F12:/F$+F2+E12-D12
>G12:"
>H12:/F$@SUM(H8...H10)
>A13:"---------+
>B13:/--
>C13:"----+-----
>D13:/--
>E13:"+---------
>F13:/--
>G13:/--
>H13:/--
>A14:"-------->l
>B14:"Total Item
>C14:"s  l
>D14:@COUNT(D8...D10)
>E14:"l NOTE: Ma
>F14:"rk Item CL
>G14:"EARED by
>A15:"STATUS ->l
>B15:"Checks Cle
>C15:"ared l
>D15:@COUNT(G8...G10)
>E15:"l      en
>F15:"tering a v
>G15:"alue of 1
>A16:"-------->l
>B16:"Outstandin
>C16:"g   l
>D16:+D14-D15
>E16:"l      in
>F16:" the <STAT
>G16:"US> column
>A17:"---------+
>B17:/--
>C17:"----+-----
>D17:/--
>E17:"+---------
>F17:/--
>G17:/--
>H17:/--
>A18:"-------->l
>B18:"Error Diff
>C18:"s  l  $
>D18:/F$@ABS(F3-H12)
>E18:"l <-- If n
>F18:"ot 0, chec
>G18:"k errors!!
>A19:"---------+
>B19:/--
>C19:"----+-----
>D19:/--
>E19:"+---------
>F19:/--
>G19:/--
>H19:/--
/GOR
/GRM
/GF>
/GFF
>A1:/GC10
/X>A1:>A3:
```

CHKBOOK/USR PROGRAM LISTING NUMBER TWO by David Goben

```
1:\18\1A\0B\0B\0B\0B\0B\0B\0B\0B\0B/IR\0B/RD.\19\0D\0A\0DRRRRRR\
2:\18\1A\0B\0B\0B\0B\0B\0B\0B\0B\0B/IR/IR\0B/RD.\19\0D\0A.\0A\0DRRRRRR\
3:\18\1A\0B\0B\0B\0B\0B\0B\0B\0B\0B/IR/IR/IR\0B/RD.\19\0D\0A.\0A\0A\0DRRRRRR\
```

Figure 1. by David Goben

```
                        DAVID'S CHECKBOOK BALANCE TEMPLATE
------------------+---------------------+--------+----------+------------------
Register Year:    | From:    Jan 01     | Beg Bal:       .00| Expected
      1980        | To  :    Jan 31     | End Bal:       .00|<---Value
------------------+---------------------+--------+----------+------------------
          Xaction  Concerned                          Cumulative <CLEAR >  Xaction
Ref. #    Date     Party           Debit    Deposit    Balance <STATUS>  Cleared
--------------------------------------------------------------------------------
 0        Jan 01                     .00        .00        .00                .00
 0        Jan 01                     .00        .00        .00                .00
>>---- NOTE:  REPLICATE LINE IMMEDIATELY ABOVE TO ADD MORE ROWS ----<<
==========================================================================
                   TOTALS:           .00        .00        .00                .00
---------+-------------+---------------+----------------------------------------
-------->|Total Items  |              2| NOTE: Mark Item CLEARED by
STATUS ->|Checks Cleared|             0|       entering a value of 1
-------->|Outstanding  |              2|       in the <STATUS> column
---------+-------------+---------------+----------------------------------------
-------->|Error Diffs  |  $         .00| <-- If not 0, check errors!!
---------+-------------+---------------+----------------------------------------
```

INVENTRY/BAS PROGRAM LISITING NUMBER THREE by Robert M. Knowles

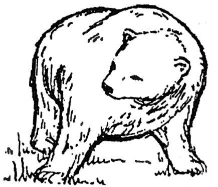
```
10 CLS
20 INPUT"HOW MANY PENCILS/DOZ ON HAND: ";B1
30 INPUT"HOW MANY PENS/DOZ ON HAND: ";B2
40 INPUT"STOCK NUMBER: ";A$
50 IF A$="DONE" THEN 100
60 IF A$="123" GOTO 80
70 IF A$="234"  GOTO 90
80 C1=C1+1:GOTO 40
90 C2=C2+1:GOTO 40
100 LPRINT
110 LPRINT TAB(28)"IN STOCK AS OF: "DATE$
120 LPRINT
130 D1=B1-C1:D2=B2-C2:LPRINT "ITEM","SOLD","IN STOCK"
140 LPRINT "PENCILS/DOZ",C1,D1
150 LPRINT "PENS/DOZ",C2,D2
```

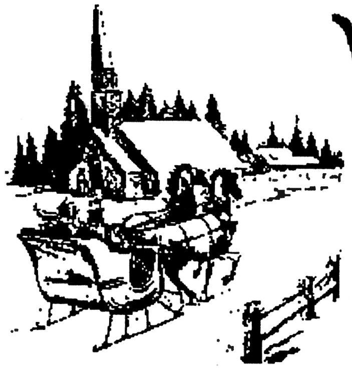
RENUM3/BAS PROGRAM LISTING NUMBER FOUR by Henry H. Herrdegen

```
1 'RENUM3: adapted from CodeWorks RENUM/BAS. Henry H. Herrdegen, 93 08 16
10 CLS: CLEAR 2000: DEFINT H-S: DEFSTR C-G: NL=600: DIM A(NL), B(NL): GOTO 31
11 '            ** Find & replace number after keyword and increment Q **
12 M=VAL(MID$(D,Q+1,9)): IF M=0 THEN 16
13 Q=INSTR(Q,D,STR$(M))+LEN(STR$(M))-1: GOSUB 27
14 IF M>TS AND M<TE THEN 15 ELSE C=C+STR$(M): GOTO 16
15  FOR H=1 TO N: IF M=A(H) THEN C=C+STR$(B(H)): NEXT ELSE NEXT
16 RETURN
17 '              ** Take care of the 'On Goto' and 'On Gosub' cases **
18  FOR K=Q TO L: P=INSTR(K,D,","): IF P=0 THEN 25
19  M=VAL(MID$(D,P+1,9)): IF M=0 THEN 25
20  GOSUB 27
21  IF M>TS AND M<TE THEN 22 ELSE C=C+","+MID$(STR$(M),2): GOTO 23
22   FOR H=1 TO N: IF M=A(H) THEN C=C+","+MID$(STR$(B(H)),2): NEXT ELSE NEXT
23  K=P
24  NEXT
25 RETURN
26 '                      ** Find Unreferenced line numbers **
27  FOR H=1 TO N: IF M=A(H) THEN H=N: GOTO 30 ELSE NEXT
28 PRINT: PRINT "* * *  Undefined line" M "in" LN "* * *"
29 C=C+CHR$(32)+CHR$(34)+CHR$(63)+CHR$(34)
30 RETURN
31 PRINT STRING$(24,45) " The CodeWorks " STRING$(24,45)
32 PRINT TAB(16) "R E N U M B E R   P R O G R A M"
33 PRINT TAB(10) "Selectively renumbers sections of BASIC code"
34 PRINT TAB(12) "(adapted for TRSDOS 1.3. H.H.Herrdegen)": PRINT STRING$(63,45)
35 PRINT "   This program allows you to renumber any section of code"
36 PRINT "WITHIN a BASIC program, and keeps all references into and out"
37 PRINT "of the affected section in order. It can also renumber the"
38 PRINT "entire program, but the new starting line number will be the"
39 PRINT "current starting line number, it can not move program blocks!"
40 PRINT "   This program will create a new program on your diskette with"
41 PRINT "the same name but with the extention /NEW, keeping the old"
42 PRINT "program (/BAS) as an unspoiled backup.
43 PRINT "   The program to be renumbered must have been saved in ASCII"
44 PRINT "format, i.e., (SAVE"filename/BAS",A)"
45 PRINT TAB(32) " Press <ENTER> to continue: ";: LINEINPUT G
46 CLS: LINEINPUT "What is the name of the program to renumber: "; F
47 PRINT: PRINT "Starting line number:"
48 INPUT "  (<ENTER> will start at current 1st line.) "; TS
49 PRINT: PRINT "Ending at line number:"
50 INPUT "  (<ENTER> will renumber thru end of program.) "; TE
51 PRINT: INPUT "  With what increment (<ENTER> = 1) "; IC: IF IC=0 THEN IC=1
52 PRINT: PRINT "Renumbering the program: " F " . . ."
53 '         ** Read the file - put its line numbers into the A( ) array. **
54  OPEN"I",1,F: FOR I=1 TO NL: IF EOF(1) THEN 56
55  LINEINPUT#1,D: S=INSTR(D," "): LN=VAL(LEFT$(D,S)): A(I)=LN: NEXT
56 CLOSE
57 N=I-1: IF TS<A(1) THEN TS=A(1)
58 IF TE=0 THEN TE=65529
59 '       ** Read the A( ) array and put new line numbers in B( ) array. **
60  TU=TS: O=0: FOR I=1 TO N
61  IF A(I)>TS AND A(I)<TE THEN B(I)=TU+IC: TU=TU+IC: O=O+1: NEXT ELSE NEXT
62 '              ** Check to see if what you want to do will work. **
```

Cont'd on next page.

```
63 IF TS+(O*IC)<TE THEN 67 ELSE PRINT "  It won't fit. Reduce the increment"
64 PRINT "  to" INT((TE-TS)/O)-1 " or less to prevent line clashes!"
65 INPUT "  Enter the new increment "; IC: IF IC=0 THEN IC=1
66  FOR I=1 TO N: B(I)=0: NEXT: GOTO 60
67  FOR I=1 TO N: PRINT I, A(I), B(I): NEXT'       ** see how it's working **
68 '                    ** Set up the name for the new output file. **
69 IF INSTR(F,"/") THEN K=LEN(F): E=MID$(F,1,K-4): F1=E+"/NEW" ELSE F1=F+"/NEW"
70 '            ** Now read the file again and substitute line numbers. **
71 OPEN"I",1,F: OPEN"O",2,F1
72  FOR I=1 TO N: LINEINPUT#1,D'              ** The main processing loop **
73   PRINT D
74   L=LEN(D)+1: S=INSTR(D," "): LN=VAL(LEFT$(D,S))
75   IF LN>TS AND LN<TE THEN E=MID$(D,S,L-S): D=STR$(B(I))+E: S=S+1
76   IF D<>"" IF INSTR(S,D,"'")=S+1 OR INSTR(S,D,"REM")=S+1 THEN C=D: GOTO 88
77    L=LEN(D): J3=INSTR(S+2,D,"'")
78    FOR Q=1 TO L: C=C+MID$(D,Q,1): CR=RIGHT$(C,4)
79     IF RIGHT$(CR,2)="ON" THEN J1=1
80     IF CR="THEN" GOSUB 12
81     IF CR="ELSE" GOSUB 12
82     IF CR="SUME" GOSUB 12
83     IF CR="OSUB" THEN J2=1: GOSUB 12
84     IF CR="GOTO" THEN J2=1: GOSUB 12
85     IF J1=1 AND J2=1 THEN GOSUB 18: GOTO 87
86    NEXT: GOTO 88
87   IF J3 THEN C=C+"'"+RIGHT$(D,L-J3)
88   PRINT C
89   PRINT#2,C: C="": D="": J1=0: J2=0
90  NEXT I: CLOSE
91 PRINT: PRINT "DONE. The renumbered program is called: "; F1
92 PRINT "      The original program remains as: "; F: END
```





1994 COMPUTER NEWS 80 ADVERTISING DEADLINES

VOLUME NUMBER	ISSUE	ADVERTISING DEADLINE	MAILING DATE
VOL. 7 # 1	January	Dec. 13	Dec. 28
VOL. 7 # 2	February	Jan. 10	Jan. 25
VOL. 7 # 3	March	Feb. 14	Mar. 1
VOL. 7 # 4	April	Mar. 14	Mar. 29
VOL. 7 # 5	May	Apr. 11	Apr. 26
VOL. 7 # 6	June	May 16	May 31
VOL. 7 # 7	July	Jun. 13	Jun. 28
VOL. 7 # 8	August	Jul. 11	Jul. 28
VOL. 7 # 9	September	Aug. 15	Aug. 30
VOL. 7 #10	October	Sep. 12	Sep. 27
VOL. 7 #11	November	Oct. 10	Oct. 25
VOL. 7 #12	December	Nov. 14	Nov. 29

Ads received after the deadline will be placed in the following issue. Please clip and save.

Computer News 80 Product Guide

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NUMBER 7 programs printed in Vol 2 No.10, 11 and 12.

NUMBER 8 programs printed in Vol 3 No.1, 2 and 3.

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NUMBER 12 programs printed in Vol 4 No. 1, 2, and 3.

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Includes: 3 button mouse w/adapter, and extender cable
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SCRIPSIT PRO FX80 DRIVER Model 4/4P/4D	$ 17.95 (Z)

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SuperSCRIPSIT for the Model 4
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Amertype	10 point
Legal	10 point
Helvetica	10 point
Optimas	10 point
Palitine	10 point
Times Roman	10 point
Palitine	12 point
Centrum	12 point
Optimis	12 point
Helvetica	12 point
Palitine	8 point

Each Font Package supports normal, bold and italics printing of letters. Thirty-six soft font packages in all, Twelve soft fonts for each word processor supported.

Prices are $10 for each soft font package, plus (Z)
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MODEL 4 HIGH RESOLUTION	$ 2.00 (V)
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TRS-80 MODEL 1/3 PUBLIC DOMAIN	$ 2.00 (V)
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Printer	Radio Shack Cat. Number	CN80 Number	Type	Price Each for	
				One	6 or More
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LP III, V	26-1414	CN1002	FABRIC CART.	6.38	5.88
LP III, V	26-1414	CN1003	FABRIC REFILL	4.79	4.29
LP VI/VIII,DMP 400/420	26-1418	CN1004	FABRIC CART.	5.60	5.10
LP VII, DMP 100	26-1424	CN1038	FABRIC CART.	6.00	4.50
DMP 110	26-1283	CN1005	FABRIC CART.	6.58	6.08
DMP130/130A/132/133/107	26-1236	CN1006	FABRIC CART.	6.40	5.90
DMP130/130A/132/133/107	26-1238	CN1007	FABRIC REFILL	5.00	4.50
DMP 500	26-1482	CN1008	FABRIC CART.	13.40	12.90
DMP 120, 200	26-1483	CN1009	FABRIC CART.	7.00	6.50
DMP 120, 200	26-1489	CN1010	FABRIC REFILL	4.85	4.35
DMP 430	26-1296	CN1013	FABRIC CART.	12.25	11.75
DMP 440	26-2809	CN1014	FABRIC CART.	19.30	18.80
DMP 2100, 2100P, 2110	26-1442	CN1015	FABRIC CART.	6.10	5.60
DMP 2100, 2100P, 2110	26-1442	CN1016	FABRIC REFILL	4.85	4.35
DMP 2120	26-2834	CN1017	FABRIC CART.	13.05	13.05
DMP 2120	26-2836	CN1018	FABRIC REFILL	7.90	7.40
LMP 2150	26-1287	CN1019	FABRIC CART.	8.00	7.50
DWP II, DWP 410/510	26-1419	CN1020	MULTI-STRIKE CT.	5.35	4.85
DWP II, DWP 410/510	26-1419	CN1021	M-S REFILL	4.50	4.00
DWP II, DWP 410/510	26-1449	CN1022	FABRIC CART.	6.55	5.95
DWP II, DWP 410/510	26-1449	CN1023	FABRIC REFILL	5.45	4.95
DWP 520, 230, 210	26-1445	CN1024	MULTI-STRIKE CT.	5.15	4.65
DWP 520, 230, 210	26-1445	CN1025	M-S REFILL	4.50	4.00
DWP 520, 230, 210	26-1458	CN1026	FABRIC CART.	5.60	5.10
DWP 520, 230, 210	26-1458	CN1027	FABRIC REFILL	4.80	4.30
DWP 220	26-1299	CN1028	MULTI-STRIKE CT.	7.95	7.45
DWP 220	26-1299	CN1029	M-S REFILL	3.60	3.10
DMP 300/2102	26-2819	CN1030	FABRIC CART.	7.15	6.65
DMP 300/2102	26-2819	CN1031	LONG LIFE CART.	6.85	6.35
ALPS ASP-1000	900-2326	CN1032	FABRIC CART.	6.60	6.10
EPSON FX/MX/RX-80	900-2327	CN1033	FABRIC CART.	5.50	5.00
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PANASONIC KXP1090	900-2331	CN1036	LONG LIFE CART.	7.35	6.85
STAR MICRON. NX1000	900-2332	CN1037	FABRIC CART.	6.45	5.95
PANASONIC KXP1180/1190/1191		CN1039	FABRIC CART.	6.90	6.40
PANASONIC KXP1180/1190/1191		CN1040	LONG LIFE CART.	7.60	7.10
SEIKOSHA SP-2000		CN1041	FABRIC CART.	6.40	5.90
DMP 500		CN1043	FABRIC REFILL	5.30	4.80
DMP 430		CN1044	FABRIC REFILL	5.60	5.10
ALPS ALLEGRO 24		CN1045	FABRIC CART.	7.25	6.75

ALL RIBBONS ARE BLACK, CART.= Plastic Cartridge, REFILL= Refills Only/No Cartridge.

Add for Shipping and Handling

1 to five items add (Y) .... 6 or more items add (Z)
Please refer to the CN80 Product Guide Shipping and Handling Schedule.

Some ribbons for the older Radio Shack printers are not stocked, but are still available by special order, please allow an additional week shipping time. All stock ribbons are shipped within 24 hours from the time the order is received. C.O.D orders accepted. Government and educational institution purchase orders are accepted. Sorry, we do not accept credit card orders.

ROM CLOCK

Internal Clock

$ 35.95
Plus S&H

ROMCLOCK Clock Chip
AND ROMCLOCK4 or 3 PROGRAM
from Computer News 80

The clock chip will install in any Model 4 or 3 computer. It provides keeping time for year, month, date, hour, minute, and seconds. Plug it in and never have to type the time and date again. It has a lithium power cell that lasts over 10 years. Complete with installation instructions and support.

ROMCLOCK4 OR ROMCLOCK3
UTILITY PROGRAM PACKAGE
by David Goben

The new clock operating program that works on SmartWatch, No-slot Clock and the CN80 ROMCLOCK. Simpler to operate and takes less memory than previous SmartWatch programs.

Complete program and manual.
$ 5.00 each add S&H

STOP THROWING PRINTER CARTRIDGES AWAY!

RECYCLE THEM

WE WILL RE-INK THEM FOR YOU
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Fabric ribbons can be re-inked dozens of times before the fabric wears out. Even then the plastic cartridge will still be good and the ribbon can be replaced. Send us your used printer ribbons and we will re-ink them using high quality ink that also contains a print head lubricant to prolong the life of your printer.

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DOS (Disk Operating Systems)

MODEL 3 (or Model 4 in the 3 mode)

TRSDOS 1.3 disk only no manual	$ 7.00 (X)
LDOS 5.3.1 Upgrade disk with mini manual..	$ 39.95 (Z)

MODEL 4 or 4D or 4P

Operating System and Manual.

TRSDOS 6.2.1 New original TRSDOS manuals and system disks	$ 45.00 (Z)
Model 4 Owners Manual (Used. No operating system disks)	$ 20.00 (Z)

Add Shipping and Handling

I/O-BUS CLOCK

External Clock

$59.00
Plus S&H

Automatically install current date and time on boot up.

No soldering, no wiring, you do not have to open your computer.

Just plug the I/O-BUS CLOCK unit on the 50 pin I/O bus connector of the Model 4/4P/4D. Compatible with using a hard drive by using a 50 pin Y cable.

Unit is shipped with program for either Model 4 TRS/LS-DOS or Model 3 DOS LSDOS 5.x.x or TRSDOS 1.3.

Please specify Model 4 or Model 3 when ordering.

Sixteen Model 4 Programs!

Mark Reed's Model 4 Utility Disk now contains 16 useful utilities for every Model 4 owner:

- **CLOSE**, to close all open files on a disk;
- **CMDEDIT**, to provide command line editing and recall at "DOS Ready";
- **CMDINST**, to install CMDEDIT on the system disk in drive zero;
- **CMDSTORE**, to install CMDEDIT's special high memory storage area;
- **DSP**, to display control codes and graphics characters;
- **MAPMEM**, to list all low and high memory modules;
- **MOVE**, to transfer files from one drive to another;
- **PRINT**, to format and print text files;
- **PRT**, to print control codes and graphics characters;
- **RECLAIM**, to remove unused high memory modules;
- **SETMOD**, to set or reset files' MOD flags;
- **SETVIS**, to make files visible or invisible;
- **SWAP**, to exchange disk drive numbers;
- **UNFILTER**, to remove a filter from a device without resetting the device;
- **VLOAD**, to display specially formatted disk files; and
- **VSAVE**, to save the display to a specially formatted disk file.

The Utility Disk comes with a help file, a 23-page manual, and full support from the author. Order your copy today for only $14.95 (plus shipping and handling) from *Computer News 80*, P.O. Box 680, Casper, WY 82602-0680.

Introducing
ED-IT for the Model 4
by Mark Allen Reed

For TRSDOS 6.2 or LS-DOS 6.3. ED-IT is a brand new full-screen text editor that combines power, versatility, and ease of use. Its features include fast operation, a large text buffer (nearly 47K with no high memory modules installed), an easy-to-use menu system (activated by the <BREAK> key), three special programming modes (for assembly language, BASIC, and C), word-wrap capability, block operations (including delete, copy, move, save, and load), search operations (including find, change, change to the end of the file, repeat last find or change, and jump to specific line number), and the ability to enter any ASCII character into the document. ED-IT also allows you to execute nearly any DOS command without leaving the editor or affecting the text buffer. You can view a disk directory, purge unwanted files, even FORMAT and BACKUP from within ED-IT!

ED-IT is powerful enough for a programmer, yet simple enough for the casual user. It is excellent for editing README files, patch listings, and job control language (JCL) files. ED-IT comes with a complete instruction manual and full support from the author. Order your copy today for only $17.95 (plus shipping and handling) from *Computer News 80*, P.O. Box 680, Casper, WY 82602-0680.

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Opening a new era of TRS-80 Computer Generated Music

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Symphony 90
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Music Player Only System

Symphony 90
Composer
Music Composer System

Symphony 90 Interface with built-in amplifier and volume control. Use with your stereo amplifier and speakers, Or use with your headphones or separate speakers from the built-in amplifier.

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If you have an original application program disk that needs to be restored, send it and $5.00 to cover the postage and handling. Please remember that it must be an original, legally owned by you, master disk. We will not restore copies of original program disks. There are many commercial games and other programs that we will not have in the archives, so it is best to call first and check.

FILE TRANSFER SERVICE

If you want to have your files transferred from one media to another. Such as having your files transferred from 5-1/4 disks to 3-1/2 we can do that for you. If you want to have files transferred from an IBM (MS-DOS) format to a TRSDOS/LS-DOS format, or from TRS-80 to IBM (MS-DOS) we can provide that service. However we do not have the equipment to handle 8" disks. Call or write for further details concerning the transfer service.

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Now only $140. Pickles & Trout CP/M-2.2m for your Radio Shack TRS-80 Model-II, -12, -16, or -6000 computer.

Still running "less-than-the-best?" We can upgrade your existing CP/M software (Lifeboat, P&T, ATON, Whatever) to the latest Pickles & Trout CP/M-2.2mH release, only $65. [Includes new manuals, full screen editor, full utilities, double sided disk support, and more.]

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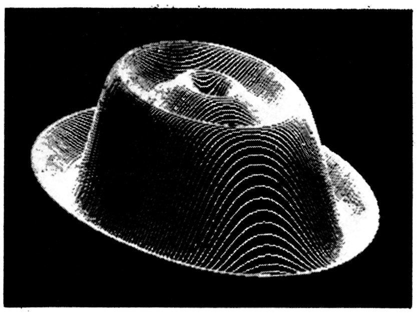
HIGH RESOLUTION BOARD FOR MODEL 3/4/4P/4D
Distributed by Computer News 80

Free Draw Program
Included

Hi-Resolution Graphics for Mod 4/4D/4P/III



Superior Hardware. The Grafyx Solution provides 153,600 pixel elements which are arranged in a 640 × 240 or on the Model III a 512 × 192 matrix. Hundreds of new business, personal, engineering, and educational applications are now possible. The hi-res display can be shown on top of the standard display containing text, special characters, and block graphics. This simplifies program debugging, text labeling, and upgrading current programs to use graphics. The Grafyx Solution fits completely within any tape or disk based Model 4, 4D, 4P, or III. Installation is easy with the plug-in, clip-on Grafyx Solution board.

Superior Basic. Over 20 commands are added to the Basic language. These commands will set, clear or complement points, lines, boxes, circles, ellipses, or arcs. The hi-res screen can be printed on any of 30 popular printers or saved or loaded to disk without leaving Basic. Areas may be filled in with any of 256 patterns. Sections of the screen may be saved and then put back using any of five logical functions. Labels can be printed in any direction. The viewing area can be changed. The entire screen can be complemented or cleared. Graphics Basic provides dot densities of 640 × 240, 320 × 240, 160 × 240, and 160 × 120, all of which can be used in the same display.

Superior Software. The board comes with over 40 programs and files which make it easier to use, serve as practical applications, demonstrate its capabilities, and serve as programming examples. The software works with TRSDOS 1.3, 6.1.2, 6.2, 6.3; Dosplus 3.4, 3.5, 4; LDOS; and Newdos80. The Grafyx Solution is also supported by 30 optional applications programs: Draw, Bizgraph, xT.CAD, 3D-Plot, Slideshow, Mathplot, Surface Plot, Chess, etc.

Purchase a Grafyx Solution Hi-Res Graphics Board for $ 99.00 and receive a free copy of DRAW a powerful graphics program which allows drawing or designs to be easily created on a Model III/4/4P/4D.

$ 99.00 Add (Z) S&H

Specify Model 3, Model 4p,
Model 4 Gate Array, or
Model 4 Non Gate Array
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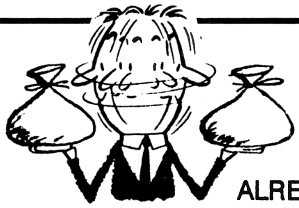

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Programs by David Goben

Available *only* from *Computer News 80*

David's Model 4 File Utilities: for **TRSDOS/LS-DOS 6.x.** Nine great file handling utilities to ensure the reliability of your files and save you *hours* of work. Of them: **DSPTXT** will allow you to view ASCII files in forward and reverse, featuring automatic word wrap, tab expansion, printed form setup, and embedded graphics. **INDEX4** will list a disk's visible files in alphabetical order, and allows you to add comments to describe them. **ERASE** totally removes all traces of a file from a disk – ensure data security. **UNREMOVE** will recover removed, killed, and purged files. Will also list all the removed files on a disk. **SAVBAS** allows you to recover a BASIC program stored in memory after you leave BASIC (and forgot to save it). *Many other utilities.* **$9 + S&H.**

David's Model III LDOS File Utilities: for LDOS 5.x. Has the same programs as those described above, except for **SAVBAS** (not needed). Contains 8 programs. **$9 + S&H.**

David's Model 4 System Utilities: for **TRSDOS/LS-DOS 6.x.** 16 powerful programs to streamline your system maintenance. Featured: **XMEMDISK** is the most powerful MemDISK utility going. Maintain more than one MemDISK! **XDRIVE** will allow you to make one disk drive act like 2. **ONEPASS** is the most powerful single-pass disk duplicator ever. Even more powerful than QFB and DISKCOPY. **VERDISK** will verify the integrity of your disks. **PRINT** allows you control any printer from the DOS command prompt. *Plus many other useful utilities.* **$16 + S&H.**

David's Model III LDOS System Utilities: for LDOS 5.x. 14 powerful programs to streamline your system maintenance. Includes all programs described above, less **XMEMDISK**. Includes **VIDX** to greatly enhance your screen and character control. **$16 + S&H.**

T62DOSXT: **For TRSDOS 6.2.x.** Still use TRSDOS 6.2 but want to re-enable the dating? T62DOSXT will patch your system to take TRSDOS 6.2 through the end of 1999. Something that LSI, the DOS's creator said was impossible. ***FULL*** compatibility with the date format of LS-DOS 6.3. Includes numerous optional system enhancement patches. Also features **DATECONV** to upgrade disks to the new format. **ONEPASS** for disk duplication. Plus more! Unlike other patches, this package is *safe* with older disks that have not been converted. Use **T62DOSXT** with *complete* confidence. **$18 + S&H.**

PACK: **For TRS-80 or MS-DOS.** Pack, unpack, compress, or superpack your BASIC programs for faster operation and more efficient use of disk space. The TRS version contains both Model I/III and 4 versions. MS-DOS version requires DOS version 2 or higher. Please specify computer system when ordering. **$17.95 + S&H.**

DEA: *The Disk Editor/Assembler.* The *most* powerful integrated editor/assembler ever written. Contains both Model I/III and 4 versions. Has more enhanced features than any other. Conditional assembly, long label names, and abundant powerful math functions that are lacking in other packages. Reference addresses in, or include code from other disk files while assembling programs. These are only a small part of its many powerful features. The **DEA** package also includes a disassembler, cross reference utilities, and plentiful programming examples. **DEA** was used to write ***EVERY*** program listed in *Computer News 80* by David Goben, including **BCX, MagicDraw, Symphony 90, Diskopt, SCRIPT,** and *all* the others!

DEA: *Making Assembly Language Accessible.* **$49.95 + S&H.**

High Resolution Programs by David Goben

Available *only* from *Computer News 80*

MagicDraw: *Making screen design easy.* For **Model 4/4p/4d with a hi-res board and a serial mouse with mouse driver software.** No high resolution Computer-Aided Drawing program has ever been like it. Nothing comes close to the speed, ease of use, and the power offered by **MagicDraw.** ***NONE!*** If you thought drawing on the hi-res screen was too cumbersome or too difficult and that you would have to leave that kind of work to others with more experience, then *think again.* **MagicDraw** is as close to buying hi-res experience as you can get.

MagicDraw offers you *dozens* of features more than its nearest competitor. It also offers you a menu selection system that was said to be totally out of reach of a TRS-80. *Wrong!* Choosing the right tool for the job has never been so easy. No more going to help screens or digging through manuals to remember a tool's selection command; with **MagicDraw** you can do so right from an easy-to-use menu.

MagicDraw: *Realizing dreams.* **$65 + S&H.**

Hi-Res Utilities Package: for **Model 4/4p/4d with a hi-res board.** Take control of your hi-res artwork with this group of 10 utilities. These are the fastest hi-res utilities ever written. **HRLOAD** will load a high resolution screen file in a fraction of the time of its nearest competitor. It will load the normal **HR** files, the "crunched" **CHR** files, and super crunched **SHR** files. **HRSAVE** allows you to save hi-res screen in **HR**, **CHR**, and **SHR** format. **HRFXPRT** allows you to dump the hi-res screen to an Epson-compatible printer with an *incredible* variety of resolutions. **HRIBMPRT** dumps to an IBM ProPrinter-compatible printer. **HRLSRPRT** dumps to a LaserJet+ compatible printer or DeskJet printer. Seven sample files included. Other utilities allow you to clear, flip, view and shrink the screen. Take the difficulty out of processing your hi-res screens. **$15 + S&H.**

Postmaster Support Utilities: For **Model 4/4p/4d with a hi-res board and with *POSTMASTER*.** Enhance your work with David P. Miller's fantastic ***POSTMASTER*** program with this set of utilities. **MAKEICN** allows you to *capture* a portion of the screen and convert it into a ***POSTMASTER*** icon. 3 capture box sizes allows you to capture larger portions of the screen and shrink them down to icon size, if you wish to. **ADDICN** allows you to add a captured icon to a library file, which ***POSTMASTER*** can use to choose from several icons. **DSPICN** allows you to view the icons you captured. **DSPLIB** displays your ***POSTMASTER*** icon libraries. **DECDFON** and **DECDBOR** allows you to *decode* ***POSTMASTER*** font and border files so that you can edit and customize them using any text editor or word processor that can process ASCII files, such as **SCRIPT** or **EDIT-4** (both available from CN80). **ENCDFON** and **ENCDBOR** allows you to *encode* ASCII files of your own creation, or *back* into font and border files to make them usable by ***POSTMASTER***. **ADDFON** and **ADDBOR** allow you to combine font and border files into libraries for use by ***POSTMASTER***. Other utilities included, along with sample files. **$39 + S&H.**

POSTMASTER 24: **for Model 4/4p/4d with a hi-res board and with *POSTMASTER*.** This filtering program allows you to print your ***POSTMASTER*** printouts on a 24-pin Epson-compatible printer (such as CN80's Seikosha SL-90) with super sharp ***laser quality***. Works transparently to the rest of the system, loading right along with ***POSTMASTER***, and even removing itself when you are done with ***PM***. This is a utility that has to been seen to be believed! **$15+ S&H.**

FAST System Utilities

By **David Goben**, & *only* from *Computer News 80*

Fbackup: The ***fastest*** file-by-file backup utility ever written for the Model III or Model 4/4p/4d. Designed for LDOS 5.3, TRSDOS 6.2, or LS-DOS 6.3 It's a whopping **8 TIMES FASTER** than the BACKUP/CMD program supplied with these Disk Operating Systems. Plus it has many new features: *alphabetized backups, single drive file-by-file backups, and more*. It will even tell you how many disks you will need. This program has to be seen to be believed. Specify Model III LDOS 5.3 or Model 4 TRSDOS 6.2/LS-DOS 6.3 on order. $15 + S&H.

Fastback: The ***fastest*** hard disk backup utility ever written for the Model III or Model 4/4p/4d. No other hard disk backup or archiving utility is faster. ***NONE!*** Don't be fool by another's claims. Selectively backup or restore files, alphabetize, even see how many disks a backup will require. As easy as **FBACKUP**, but made for those large files that normal backup disks would not be able to hold. Designed for LDOS 5.3, TRSDOS 6.2, and LS-DOS 6.3. Specify Model III or Model 4 on order. $29.95 + S&H.

Fformat: This is the ***fastest*** disk formatting program ever written. Formats a 180K disk in 18 seconds! Works like FORMAT, but with greater versatility and speed. It can even apply high level formats and verify hard disks in one step -- no more fumbling with more than one utility. A PURGE parameter allows you to reformat disks in a flash. Format 80-cylinder 2-sided disk with ease with the BIG parameter. Designed exclusively for LDOS 5.3, TRSDOS 6.2, and LS-DOS 6.3. Specify Model III or Model 4 on order. $15 + S&H.

Word Processing

by **David Goben**, & *only* from *Computer News 80*

Script: Word processor for the Model III and 4/4p/4d. ***Not*** a patch program. This is a *complete* word processor with all the features made famous by SCRIPSIT, *plus* dozens of new amenities. Powerful editing, formatting, and printing features you would expect only from packages costing much, much more. A poor person's word processor that produces professional results. Specify computer and DOS when ordering. $37.95 + S&H.

Script Spelling Verifier: For Model III and 4/4p/4d. A *powerful* spelling checker/corrector for **SCRIPT**, Disk SCRIPSIT, ALLWRITE, ASCII, TED, and other ASCII format files. Features over 75,000 words. Add up to 17,000 more words to an additional custom dictionary. Specify computer and DOS when ordering. $37.95 + S&H.

SuperScripsit Spelling Checker: For Model III and Model 4/4p/4d. Add spell checking / proofreading capabilities to SuperSCRIPSIT. Fully integrates into the word processor. *Easy* to install. Specify computer when ordering. $37.95 + S&H.

Model 4 Spreadsheets

Written by David Goben

Available *only* from *Computer News 80*

BCX: *The Business Calculator for Extended Memory Model 4's.*

The spreadsheet for the 90's. For Model 4 128K+. Called by its users the *friendliest* and *fastest* spreadsheet ever written for the Model 4. **No** Model 4 spreadsheet calculates faster than **BCX**. It is so fast that users have become used to keeping the automatic update feature on at all times; something you would *never* want to do with VisiCalc or Multiplan. **BCX** can calculate sales projections, income taxes, personal budgets, cost estimates, engineering changes, balance your checkbook, plus ***thousands*** of other applications. Whatever you need tabulated or computed, **BCX** can do! Play "what if" with your spreadsheets to figure your best strategies; **BCX** will remember your calculations so that when you make changes that will affect other cells, the entire spreadsheet can be *quickly* and *automatically* updated to reflect those changes, no matter how many or how drastic.

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- **Pop-up command windows in *plain* English; no trick keywords**
- **Fastest screen scrolling of any spreadsheet**
- **Powerful printer options to set up any printer**
- **Huge hand-holding hands-on tutorial to help you master BCX**
- **Many powerful replication and data manipulation features**
- **A handy quick reference and a complete reference manual**

and *many more* capabilities. Has all the features users wished VisiCalc and Multiplan had. With all this power, why settle for anything less?

BCX: *The way spreadsheets should be.* $109 + S&H

Demo disk available for $15. Good toward purchase of full program.

Busy-Calc: *The Family & Small Business Spreadsheet.*

For Model 4 64K+. An economical, yet powerful and *extremely fast* spreadsheet for those who do not need huge layouts. A comfortable 64 x 64 cell matrix with powerful function, math, and reference support. Can support up to 4 banks of extended memory if you have it, though not necessary. Has most of the features of **BCX**, though simpler in structure and thus easier to use.

Busy-Calc comes complete with a reference manual featuring an extensive hand-holding, hands-on tutorial. A quick reference manual is included when you just need a refresher.

Busy-Calc: *Making spreadsheets easy.* $79.95 + S&H

Demo disk available for $10. Good toward purchase of full program.

Still More Programs
by David Goben

Available only from *Computer News 80*

Model 4 Small C: **For Model 4.** Program in the language of the 90's without having to memorize huge volumes of complicated manuals. Small C is a large, almost complete subset of the C programming Laguage, and **much** more powerful than any other Small C package previously released for CP/M or MS-DOS. C is quickly becoming the programming language of choice by beginner and vetran programmers alike. See what it's all about without it costing you and arm and a leg. The package comes complete with the Small C compiler, program optimizer, macro assembler, and linking loader, plus other programs. What's more, the ***complete*** source code for all these files (except for MAKE/CMD) is included in this package, including the ***libraries***. More than that, ***all*** these files are written in Small C! So see by real-world example practical Small C programming! Complete with 225 page reference. **$45 + S&H**

Disk Optimization Package: **For Model 4.** Quickly defragment the files on your disks or hard disks, and optimizes their storage space. Super fast operations for quick results. During normal everyday operations, you delete, create, and expand or compress files. This causes files to be broken up into several different locations on a disk. This results in slower access to your files. The included ***DIRCHECK*** program will test your drive for errors, and fix most that you may have thought were fatal. The included ***TESTFRAG*** tests a drive to see if files exist that are fragmented. ***DISKOPT*** will defragment your files, and optionally compress the disk space, to prevent easy fragmentation of files yet to be added to the drive. Full and complete support for Model 4 SubDirectories (below) included! Uses extended memory if available for even faster operation. An essential utility especially for hard disk owners. **$29.95 + S&H.**

SubDirectory Utilities: **For Model 4.** Totally eliminate the 256-file limit of a disk drive with this set of utilities. Create *additional* directories that are subordinate to a disk's normal directory, or create whole branched systems, placing only related files in each SubDirectory. This set of utilities ***DO NOT*** create large, cumbersome files on your disks. Each SubDirectory takes up only a ***very small*** amount of disk space. These SubDirectories instead share the main directory allocation map, making large support files totally unnecessary. Even create SubDirectory trees on a floppy disk! Especially handy for hard disk users who are too often plagued by running out of file "slots" in a drive ***long*** before they run out of drive space. An essential utility for those who must keep huge repositories of files, or those who would prefer to keep related programs/files in separate niches. The SubDirectory Utilities is your answer. **$19.95 + S&H**

SuperSPOOL: **For Model 4.** Increase your productivity by decreasing the time you spend waiting for your printer to finish. Allows printing in the "background" while you go on with your other computing tasks. Unlike the Model 4 SPOOL utility, **SuperSPOOL** will take advantage of all your extended memory, even if you have non-standard add-ons that have patched the DOS to support 32K banked blocks. Can use up to 1 Megabyte if you have it. On a standard 128K Model 4, this gives you a 64K printer buffer. Also unlike the DOS's SPOOL utility, **SuperSPOOL** will not lock up your computer and lose its data if the PAUSE feature is on. Even further, **SuperSPOOL** can load into *low memory*, so that those programs that cannot run with high memory routines present will operate. Using **SuperSPOOL** is like buying an expensive printer buffer device, but does not take up valuable desktop space, and costs a whole lot less. Set your printer free with **SuperSPOOL**. **$15 + S&H**

TRANSFER FILES BETWEEN
Model 4/4P/4D and MS/PC

MS UTILITIES BY DAVID P. MILLER

Transfer files quickly and easily between your Model 4/4P/4D and IBM-PC Clones.

Transfer files from MS-DOS formatted disks to TRS/LSDOS formatted disks, or from TRS/LSDOS to MS-DOS formats on your Model 4 or 4P/4D.

Read MS-DOS formatted disk directories or format MS-DOS disks with your Model 4/4P/4D. Add linefeeds or strip linefeeds as needed.

$30.00 Plus S&H

System Requirements: MS-Utilities only operates on the Tandy Radio Shack Model 4/4P/4D Computers using TRSDOS 6.2.x or LS-DOS 6.3.x operating system. It will read and transfer files stored on a disk formatted with LDOS 5.x. and TRS/LSDOS 6.3.x.

DAVE'S MOUSE MENU
By David P. Miller

Build a up to twenty six DOS command menu with the ability to repeat the DOS command by pressing a keyboard letter, pressing the arrow keys to "point and shoot" or use your mouse for "point and shoot" selection.

No longer do you have to memorize DOS commands and parameters that you use all the time. Simply type them in once and then select them from the menu.

Fully compatible with the use of a mouse, keyboard or arrow keys.

$ 15.00 Plus S&H

David P. Miller is the author of PostMaster

Refer to March 1993 CN80 (Vol. 6 No. 3) for more information about Dave's Mouse Menu.

HOWE SOFTWARE FOR MODEL I, III AND MODEL 4/4D/4P

Published and Distributed by Computer News 80

TYPITALL Word Processor $ 49.95

Word processor upwardly compatible with SCRIPSIT -- it reads your old SCRIPSIT files and uses the same formatting and cursor movement commands. Send any control/graphics character to the printer. Print formatted text on the screen, or send it to a disk file for later printing. Merge data from a file during printing. Assign any sequence of keystrokes to a single control key. Call up to 16 help screens at any time. Move cursor forward or backward by character, word, line, paragraph or page. Complete with easy to read manual.

TYPITALL Word Processor with Spelling Checker $ 79.95

Optional spelling checker has 29,500 word dictionary -- verify a 3,500 word document in less than two minutes.

SYSTEM DIAGNOSTIC $ 69.95

Complete tests for every component of your TRS-80 Model 1, 3, or 4 (separate versions for each model). **ROM**:checksum test. **RAM**:three tests. **Video Display**: character, video RAM, signal. **Keyboard**: every key contact tested. **Line printer**: character tests. **Disk Drives**: disk controller, drive select, track seek, read sectors, formatting, read/write/verify data with or without erasing, disk drive timer, disk head cleaner. Single/double density, single sided or double sided drives from 1 to 99 tracks. **RS-232-C Interface**: connector fault, data transmission, framing, data loop, baud rate generator. - Specify version when ordering.

SMART TERMINAL $ 19.95

The intelligent telecommunications program for TRS-80 Model 1, 3, 4 or 2/12 CP/M. Memory buffer for sending and receiving file. Automatic transmission and reception of data. Character translations, true **BREAK** key, and help screens.

HOWE SOFTWARE FOR TRS-80 AND MS-DOS SYSTEMS

SMALL BUSINESS ACCOUNTING WITH PAYROLL $ 99.95

Based on the Dome Bookkeeping Record #612, this program handles bookkeeping and payroll for a small business. Bookkeeper provides single entry ledgers for income and expenses, computes monthly and yearly summaries. Payroll handles up to 99 employees, with automatic deductions of F.I.C.A. and Federal income tax. State tax and three optional deductions also included. Prints payroll and expense checks, Form 941 reports and W-2 Forms.

MAILING LIST $ 79.95

Create and maintain mailing lists of up to 32,767 names and addresses. Up to five-line entries, including title, first and last names, optional second line, address, city, state, zip code, optional fifth line and telephone number. Sort or search for names by any field. Prints labels in 1, 2, 3, or 4 adjustable columns or on envelopes. Print form letters with any substitutions.

HOME BUDGET and CHECKBOOK ANALYST $ 49.95

A complete checkbook program combined with budget comparisons, income and expense analysis, and projections. Computes current checking balance. Also handles non-check expenses, bank debits, and income. Monthly and year-to-date summaries, yearly projections based on data up to a known month.

SMALL BUSINESS MANAGEMENT SYSTEM $ 149.95

A complete **point-of-sale** program for a small business. **Order desk** handles order entry, invoicing. Includes 1,999 8 character part numbers. **Bookkeeper** maintains general ledger. **Inventory** produces sales reports. **Installation** sets program to your business.

ADD SHIPPING AND HANDLING TO ABOVE PRICES

IDIM BULLETIN BOARD HOST SYSTEM
by Leonard Lorden

IDIM (I DID IT MY WAY) Bulletin Board Host System is a completely new software system written for the Model 4 computer. It comes with a 22 page manual with full instructions and three disks of programs for setting up your own bulletin board.

$ 60 plus Shipping and Handling.

VH/LIB By Richard VanHouten
LIBRARY OF SMALL C FUNCTIONS

Features Wildcard directory Searching, low and high resolution graphics routines (with emphasis on the high resolution routines) and mouse interface routines. It is a must for anyone programming in Small C on the Model 4.

$19.95 plus Shipping and Handling

ANSITERM 4

by Richard VanHouten

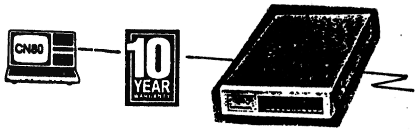
TRS-80 Model 4 High Resolution Communications Program.

Supports ANSI (American National Standards Institute) and AVATAR control codes. IBM graphics and file transfer by X-modem or Y-modem.

System requires Model 4 with Modem and High Resolution Board.

Program complete with printed manual.

$ 30.00 (Y) S&H Order from CN80



2400 Baud External Modem

from Computer News 80

$ 78

Plus $4 S &H

2400 baud transmission speed
Hayes compatible
Compatible with Model 3/4/4D/4P
Compatible with IBM PC/XT/AT
Auto dial/answer
Eight status indicator lights
Built-in speaker with volume control
Second jack for local phone
Call progress and error detection
Ten year manufacturer's warranty
Manufactured in the USA

Complete with all cables and

TRS-80 Communication Software

I/O-BUS LD INTERFACE

for EXTERNAL FLOPPY DISK DRIVES

Add external floppy disk drives to your Model 4P - no internal wiring - plug the interface into the external 50 pin I/O connector on your 4P and plug your external disk drives into it.

Add additional floppy disk drives to your Model 4 or 4D - again just plug the interface into the 50 pin I/O bus connector and add floppy disk drive 4 & 5.

Software for TRSDOS 6.2.x and LS-DOS 6.3.x and cable included.

Controls Double-Sided 5.25 360K, 3.5 720K or Single-Sided 180K drives.

$ 180 + $4 S&H

==========================

Software for LDOS 5.3.x $ 29.94 + S&H additional. For use with the Model 4 in the III mode.

CONNECTORS

DESCRIPTION	PRICE
FLAT RIBBON CABLE CONNECTORS	
50 Pin Male Edge Card Mating Connector	4.95
50 Pin 25x2 Edge Card/Female	1.75
50 Pin 25X2 Header Female/Socket	1.25
50 Pin 25x2 Header Male/Plug w/mounting	8.50
50 Pin 25x2 Header Male/Plug no mounting	8.50
36 Contact Centronics Male (Printers)	4.00
34 Pin 17x2 Header Female/Socket	1.95
34 Pin 17x2 Edge Card/Female	1.35
34 Pin 17x2 Header Male/Plug No Mounting	7.50
34 Pin 17x2 Header Male/Plug W/Mounting	7.50
25 Pin DB25 (RS232) Male/Plug	3.00
25 Pin DB25 (RS232) Female/Socket	3.00
PC BOARD MOUNT	
34 Pin 17x2 Box Header - Straight Solder	2.50
50 Pin 25x2 Box Header - Straight Solder	4.50

CONNECTOR S&H
Add $ 2.00 Shipping and Handling if ordered alone.
Shipping and Handling included if ordered with other items.

EXTENSION BLOCKS AND FLAT CABLE

DESCRIPTION	PRICE
EXTENSION CONTACT BLOCKS	
34 Pin 17x2 PCB Socket - 3/16" High	5.50
34 Pin 17x2 PCB Socket - 5/16" High	5.50
34 Pin 17x2 PCB Socket - 5/8" High	5.50

EXTENSION S&H
Add $ 2.00 Shipping and Handling if ordered alone.
Shipping and Handling included if ordered with other items.

FLAT RIBBON CABLE	
25 Conductor	.38 per ft.
34 Conductor	.51 per ft.
50 Conductor	.75 per ft.

CABLE S&H
Add $ 3.00 Shipping and Handling if ordered alone.
Shipping and Handling included if ordered with other items.

CUSTOM CABLES BUILT UPON REQUEST
Call for price quotes.

ACCURATE

SIMULATION OF A

VIDEO POKER

MACHINE

by J. F. R "Frank" Slinkman

Play real poker on your computer with remarkable screen renditions of the playing cards. Optimum video poker strategy can be used on VIDPOKR4 or to play the real thing in Atlantic City or Nevada.

Any Poker fan will really enjoy playing against the computer, or practice the winning strategy that is included with this game package.

Model 4 with 128K and High Resolution Board Required

$19.95 (Y) S&H

Order from Computer News 80

ACCURATE

SIMULATION OF A

1930'S MILLS
SLOT
MACHINE

by J. F. R "Frank" Slinkman

Want to see a real rendition of a working slot machine on your Model 4 computer screen? Then SLOT4 is the one that will do it. True revolving dials for payoff, moving handle, with coin dropping sound.

Amuse yourself and your kids for hours on end. Entertain your guests at your next party with your computer by letting them play SLOT4.

Model 4 with High Resolution Board Required

$14.95 + (Y) S&H

Order from Computer News 80

GIF GRAPHICS FOR YOUR MODEL 4

by J. F. R. "Frank" Slinkman

Send GIF (Graphics Interface Format) high resolution graphics to and receive high resolution graphics from computers of different types with your Model 4 and GIF4MOD4 program.

A high resolution board is highly recommended, but not required. If you have a high resolution graphics board GIFMOD$ will decode any GIF image up to 640 pixels x 480 pixels x 256 colors and put the image on your screen. If you do not have a hi-res board installed the program will convert the GIF format to a /HR format. Then with a High Resolution utilities packager available fro CN80 you can send the /HR picture to your printer.

This package also allows you to send GIF files.

#37.95 + (Z) S&H

MINE FIELD

EXCITING AND NEW GAME FOR THE TRS-80 MODEL 4.

by Richard VanHouten

Cross the mine field and flag all the mines in advance of your troops without going boom yourself.

Five degrees of difficulty, the more mines you flag the higher your score.

Fully serial mouse supported, but a mouse is not required.

$ 12 plus S&H

ARRANGER II

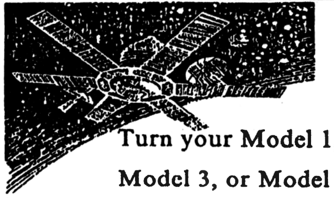
100% Machine Language Disk Index Program for the TRS-80 Model I, III, 4/4D/4P
Automatically recognizes all major TRS-80 disk operating system formats.

The ARRANGER II written by Dan Foy almost ten years ago, is a master index system that automatically records the names of your programs, what disks those programs are on and the type of disk operating system the disk was formatted under.

Program Capacity..........................	11,000 programs optimum, 8,000 typical, 255 filenames per disk, 255 disks per library data file.
Disk Drive Compatibility.............	Reads 5-1/4" or 3-1/2" single-sided or double-sided; 35, 40, 80 track, and is auto self-configuration.
Functions......................................	Add Delete Scan View Find (Search) Print Rename Change Update Toggle Locate Manual Backup Exit
Printouts..	Prints out three column 8-1/2 x 11 pages with your programs listed in alphabetical order or by extensions. Prints labels with Disk:names, DOS type, and Type of disk, (system or data.)
System Requirements..................	Model I/III/4/4P/4D with one or more drives and 48K or more.

The greatest aid to keeping track of your disk library ever created for the TRS-80 computers. Your programs are printed in easy to read vertical alphabetized columns, unlike the horizontally alphabetized rows of the CAT program. You keep all your library on one disk in one library regardless of their DOS format type.

$39.95 Add (Z) S&H



Turn your Model 1,
Model 3, or Model 4/4P/4D
In to a Programmable
Calculator with

ASTROCAL

by VERNON B. HESTER

Designed for the student, or professional. Engineers, lab technicians, accountants, real estate brokers, designers, anyone who does repetitive or complex mathematical calculations.

10,000 Program Storage Location, 84 Labels, 100 Addressable Memory Registers, True Algebraic Entry.

This unique product intergrates mathematical programming functions in to a single convenient application. Develop scientific, financial and statistical programs with ease.

$29.95 Add (Z) S&H

MOUSEDOS

by Leonard Lorden

Load MOUSEDOS (Mouse Plus by David Goben is required) and select an icon from the screen display. Disk Drive Icon, displays a new menu and mini-keyboard. Write your command line. Utility Icon, displays several DOS commands and utility icons, click the mouse on the desired command icon or click the Exit icon to return to the main menu.

Included are icons for AUTO, BACKUP, BOOT, CONV, COPY, FILTER, FORMAT, FORMS, LINK, LIST, REMOVE, RENAME, RESET, ROUTE, SET, SETKI, SPOOL, SYSTEM, VERIFY.

Fancy in appearance, easy to understand and use. A must for mouse users. $ 25 plus S&H

Disk Operating Systems

TRSDOS 1.3 disk only no manual	$ 7.00
LS-DOS 6.3.1 Upgrade disk with mini manual.	$ 39.95
LDOS 5.3.1 Upgrade disk with mini manual.	$ 39.95

Operating System and Manual.

TRSDOS 6.2.1 New original TRSDOS manuals and system disks.	$ 45.00

TRS-DOS 6.x Manuals Only

Model 4 Disk Owners Manual (Used copies no operating system disks)	$ 20.00

Plus S&H

SEIKOSHA SP-2400
9 Pin Printer

80 Column Printer
300 Characters Per Second
IBM and Epson Compatible
Standard Parallel Interface
Built-In Push Tractor & Friction Feed
Easy Front Panel Controls
Paper Parking
Graphics
Two year Manufacturer's Warranty

$ 179

Add $ 6.00 S&H, Shipped by UPS only.

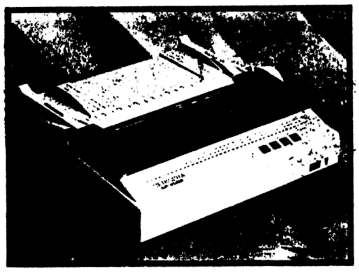
Fully supported by CN80 and completely compatible with PostMaster, Rembrandt, Long and Loud and all the programs, published by CN80. Will work with any Model III/4,4P or 4D computer.

SP2400 Ribbons
CN1041 $6.40 ea. $5.90 six or more.
SL-90 Ribbons
CN1046 $7.25 ea. $6.75 six or more.

SEIKOSHA SL-90 PLUS
24 Pin Printer

80 Column Printer
240 CPS draft / 80 CPS LQ
IBM and Epson Compatible
Standard Parallel Interface
Built-In Push Tractor & Friction Feed
Easy Front Panel Controls
Paper Parking
Graphics 360 Resolution
Two year Manufacturer's Warranty

$ 279



SEIKOSHA
A SEIKO GROUP COMPANY

PostMaster

Computer News 80

PostMaster by David P. Miller is a program that lets you create Posters, Letterheads and Mailing Labels with icons, borders, and many different character fonts using your dot matrix printer. The program runs on TRS-80 Model 4/4P/4D, with 64K or 128K of memory that has a MicroLabs or Radio Shack high resolution board installed.

This program has received the highest praise from reviewers of any program ever written for the Model 4. It allows you to use thousands of icons, borders, and fonts that are available from the File Cabinet Icon Library, it also allows you to add your own icons, borders and fonts.

Printers supported: Radio Shack DMP-130, -130A, -131, -132, -133, -430, -2100P, also any Radio Shack DMP printer with a 3-digit number with "3" as the second digit. All Epson and IBM printers. All other dot matrix printers that are Epson and IBM emulation printers. Seikosha SP-2000, -2000Plus, -2400. Okidata Microline 182 and 192. Panasonic KX-P1091, -1092, -1124, nonsuffixed. Star 10X, -15X, -NP, -NX, LC-10. C-ITOH 1510, 8510, C-130. (Note - Dot Matrix printers providing 300-dpi or 180-dpi may not work with PostMaster and no guarantees can be made concerning them.

Printers that are not supported are: Radio Shack DMP-110, -120, -400, -500, -2100. Panasonic suffixed printers 1124i, 1124e, etc. Okidata 82, 92, and Daisy wheel printers.

Order from Computer News 80..................$40.................add S&H (Z)

IDE HARD DRIVES

by StanTech
div. of Computer News 80

Interface Hardware Circuitry by
Tim Worcester

Software by
David P. Miller

Now you can have the latest in hard drive technology with your Model 4/4D/4P.

Complete with 4 foot hard drive cable, power cord and power supply in an external enclosure, and complete operating software.

Each Drive is custom built per order using Seagate Hard Drives - please allow 4 weeks for delivery.

42.8 Meg Byte $ 350.00
for Real Time Clock
installed add $35.

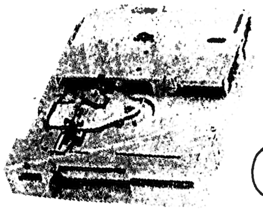
85 to 125 Meg. Drives are available but have some restrictions on the number of floppy drives and HD partitions that can be used, due to the nature of TRSDOS/LS-DOS.

85 Meg Byte	$ 400.00
125 Meg Byte	$ 430.00

Add $ 6.00 S&H

CHINON 5.25" Floppy Disk Drive

Low Power Consumption Plus High Performance



CUSTOM IC design in the read/write and control circuits gives maximum performance and low power consumption. A pop-up mechanism protects against mischucking upon disk insertion, allowing disks to be loaded/unloaded with ease. Chinon 5.25" floppy disk drives provide high speed access (3 ms)

DOUBLE SIDED HALF HEIGHT DRIVES
Install in any Model 3/4/4P/4D

CHINON 3.5" Micro Floppy

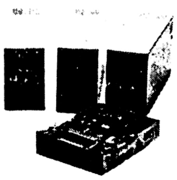
High Storage Capacity

Internal Half Height 5-1/4" 720K & 1.2 meg *This drive can not be used in a Model 4 Computer.	$ 89.95 (Z)
Internal Half Height 3-1/2" 720 & 1.44 meg *This drive can be used in a Model 4 Computer.	$ 79.95 (Z)
Internal Half Height 5-1/4" 360K *This drive can be used in a Model 4 Computer.	$ 67.00 (Z)
Cables to connect internal drives	$ 10.00
Half Height filler plates	$ 4.00

*No S&H for cables and filler plates when ordered with drives.

- One Year Manufacturer's Warranty

Need more information? We welcome your calls.



EXTERNAL DISK DRIVES

From

Computer News 80

These external disk drives come in a metal case with power supply, power cord, and 4 ft. drive cable which plugs into the external disk drive connector on your computer. External disk drives are shipped complete via UPS ready for you to use, just plug them in and run. Plus you get our full support and two year warranty.

Add convenience and 720K storage space
with 3-1/2 disk drives to your system.
Complete with all cables ready to go
at one low price.
FULL TWO YEAR WARRANTY
On all parts and labor.

ALL DISK DRIVES ARE HALF HEIGHT DOUBLE-SIDED DRIVES

One disk drive unit........................$ 143.00
with one 5-1/4 360K
or 3-1/2 720K unit.

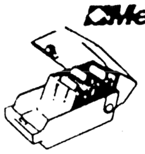
Two disk drive unit........................$ 193.00
with two 5-1/4 360K drives
or two 3-1/2 720K drives
or one 5-1/4 and one 3-1/2 drives.

Add $ 6.00 Shipping and Handling in the US only, all others contact us for shipping costs.
CHECK OR MONEY ORDER, NO CREDIT CARDS

MEDIAMATE® Disk Files

MediaMate

- Contemporary design.
- Includes 3 dividers.
- Built in handle with mar resistant rubber feet.
- Putty base with clear lid.



3-1/2" Holds 40 Disks ..... $ 5.90
5-1/4" Holds 50 Disks ..... $ 6.75

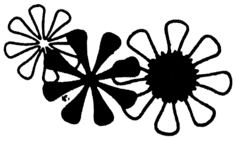
Add (T) for S&H

CNPC has the lowest price for quality

Scripsit Pro Word Processing

The original -- brand-new -- never used. This is the ultimate in word processing programs for the Model 4/4P/4D. And it is the program used to construct CN80 and CNPC. (128K memory required.)

$80.00 + $4 S&H



PLATINUM
3-1/2 DISKS
Double Sided Double Density
Premium Quality
by Major US Manufacturer
69 Cents Each
Complete with labels and sleeves
100% Certified Error Free, Lifetime Warranty

From the World of
syncom
ABSOLUTELY THE BEST
BOXED BRAND NAME DISKS
10 Mil Jackets 5-1/4 Double-Sided or Single Sided
$ 7.40 per box of 10

From the World of syncom
5-1/4 Floppy Disks

The File Cabinet
THOUSANDS OF PROGRAMS

Programs as low as 15 cents each.
Order your printed catalogs today !

MODEL 4 CATALOG	$2.00
MODEL 1/3 CATALOG	$2.00
Hundreds of Utility, Business, Game, Educational and Communication Programs are in each catalog.	
HIGH RESOLUTION CATALOG	$2.00
Hundreds of /HR format pictures, including nudes and other artworks. Ready to use alone or create PostMaster Icons or Clip Art.	
MAC/PAINT CATALOG	$2.00
Hundreds of files created with MacPaint. View on the Model 4 or print using Mac Utilities.	
SYMPHONY 90 CATALOG	$3.00
Hundreds of music files ready to play.	
PostMaster ICON CATALOG	Free
ALLWRITE FONTS CATALOG	Free

Disk Volume Prices: 1 to 10 Volumes $3.50 ea. (X) S&H, 11 to 20 Volumes $ 3.25 ea. (Y) S&H, 21 and over $3.00 ea. (Z) S&H. 5-1/4" or 3-1/2" disks. No extra charge for 3-1/2" disks.

Download Through The Mail

Classified *Computer News 80* Classified

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